PRD IR.26

End-to-End Functional Capability Specification for Inter-PLMN Roaming (Stage 4 Testing).

Addendum for Phase 2 Supplementary Services and Operator Determined Barring

3.7

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This is a binding permanent reference document of the GSM Association.

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3.7	1 October 2005	Annual Review – no changes made to content. Several items were reformatted and updates to the security rules noted.
Changes Since Last Version		

Important: It is anticipated that further updated issues will be made in response to IREG comments and following experience of testing.

Table of Contents

1. INTRODUCTION

1.1. Scope of document

This document is the specification of IREG End-to-end Functional Capability tests, for Phase 2 Supplementary Services, relating to the international roaming of a Mobile Station, belonging to a home PLMN (a), to and within a visited PLMN (b).

This document is an addendum to IREG Permanent Reference Document IR-24. Therefore it shall be read and understood in the context of IR-24, which deals with basic roaming, Voice Teleservice, Short Message Service and the Phase 1 Supplementary Services.
Hence the following parts of IR-24 shall apply:

- The list of abbreviations
- Details of test equipment
- Details of Pre-Testing Data Exchange

A Completion Certificate (Appendix D) will be filled out in conjunction with the testcases of IR-26.

It is recognised that the testcases in IR-26 may be performed on different occasions, because the Supplementary Services may become available at different dates. If this happens a revised Completion Certificate will be required on each occasion.
If any testcases of IR-26 are performed at the same time as IR-24, then the IR-24 Appendix B (Completion Certificate) should make reference to the existence of an IR-26 Appendix D (Completion Certificate).

Because of the close relationship between IR-24 (Basic call, Call Forwarding and Call Barring) and IR-26 (Phase 2 Supplementary Services), the Appendices have been named consecutively in IR-26. Therefore there is no Appendix A or B in IR-26.

1.2. Abbreviations

The following abbreviations are used in addition to those used in IR-24:

AoCC	Advice of Charge Charging
AoCI	Advice of Charge Information
CAI	Charge Advice Information
CCF	Conditional Call Forwarding
CCM	Current Call Meter
CFNRy	Call Forwarding on No Reply
CH	Call Hold
CLI	Calling Line Identity
CLIP	Calling Line Identity Presentation
CLIR	Calling Line Identity Restriction
CUG	Closed User Group
CW	Call Waiting
IR-	Permanent Reference Document produced by IREG.
MPTY	Multiparty
ODB	Operator Determined Barring
USSD	Unstructured Supplementary Service Data

1.3. Objective of tests

The general objectives of the tests are identical to those stated in IR-24.

The specific objectives of IR-26 are to prove that:-

(a) Specific Supplementary Services can be invoked successfully within the VPLMN:-

(i) Call Hold.

(ii) Call Wait.

(iii) Multi-Party.

(iv) Advice of Charge (Charging) for a Mobile Originated Call.

(v) Advice of Charge (Charging) for a Mobile Terminated Call.

(vi) Advice of Charge (Information) for a Mobile Terminated Call.

(vii) Calling Line Identity Presentation.

(viii) Calling Line Identity Restriction (Permanent and Temporary modes).

(ix) Calling Line Identity Restriction interaction with Call Forwarding.

(x) Connected Line Presentation (For further study).

(xi) Connected Line Restriction (For further study).

(xii) Closed User Group Intra-CUG call between two Mobile Stations, one of whom has roamed to this VPLMN: the other MS remaining at home in the same PLMN.

(b) Specific Supplementary Services can be interrogated by an MS which has roamed:-

(i) Calling Line Identity Restriction.

(c) Operator Determined Barring or equivalent capability is available to allow the HPLMN to control its subscribers which have roamed.

(d) Unstructured Supplementary Service Data mechanism (Phase 1 and 2) functions between the HPLMN and VPLMN

FURTHER STUDY

(i) Other Basic Services are supported by repeating (a) for any non-speech Basic Services available on both PLMNs. [In early phases of GSM this will

probably be restricted to Data Bearer and Fax services. This item is for Further Study].

1.4. Strategy for Testing

The strategy for testing is identical to that described in IR-24.

2. TEST CASES

The test cases are in nine groups: each group contains a set of test cases which it is envisaged would be tested together. Individual groups could be tested separately to take account of staggered roll out of the full set of Phase 2 Supplementary Services.

The test configuration is as shown in IR-24.

The results of the test cases shall be recorded in Appendix C.

It should be noted that only those Supplementary services referenced in the "Preconditions" notes are to be active.

2.1 Call Waiting and Call Hold

2.1.1 Call hold

Preconditions :	HLR(a) entry contains "SS CH : Provisioned" [Set by service provider]. MS(a) is registered in VPLMN(b).
Action :	PSTN(b) calls MS(a), MS(a) has roamed to VPLMN(b). Maintain answered call to MS(a). MS(a) puts PSTN(b) in held state. MS(a) retrieves PSTN(b) from held state. MS(a) and PSTN(b) talk. MS(a) terminates call.
Result :	Successful if PSTN(b) is given an appropriate indication that the call has been placed on hold and is subsequently retrieved.
Comment :	This test case confirms the ability for a roamed MS to have a call in the held state.

2.1.2 Call Waiting

Preconditions :	HLR(a) entry contains "SS CW : Provisioned, Active" [Set by service provider]. MS(a) is registered in VPLMN(b).
Action :	PSTN(b_1) calls MS(a), MS(a) has roamed to VPLMN(b).

Maintain answered call to MS(a).
(i) PSTN(b_2) calls MS(a) while MS(a) is busy.
(ii) MS(a) clears the call from PSTN(b_1), and connects to the call from PSTN(b_2).

Result : (i) Successful result if PSTN(b_2) is given an indication (e.g. ringing tone) that MS(a) is being informed of the incoming call, and if MS(a) is informed of the incoming call by an appropriate call waiting indication.
(ii) Successful if MS(a) is connected to PSTN(b_2).

Comment : This test case confirms the ability for a roamed MS to receive a call waiting indication (i) and to connect to the waiting call (ii).

2.2 Multiparty

Preconditions : HLR(a) entry contains "SS : MPTY : Provisioned" and “SS CH Provisioned” [Set by service provider].
MS(a) is registered in VPLMN(b).

Action : MS(a) calls PSTN(b_1), MS(a) has roamed to VPLMN(b).
Put the answered call into held state.
MS(a) calls PSTN(b_2), the call is answered.
Add the held party to the connected party.

Result : Successful result if a conference call is set-up between MS(a), PSTN(b_1) and PSTN(b_2).

Comment : This test case confirms the ability for a roamed MS to set-up a conference call.

2.3 Advice of Charge

If the VPLMN does not support AoCC, then it is for the HPLMN to be responsible for denying Location Registration attempts from that VPLMN, for those subscriptions which contain AoCC. The testing of the mechanism, which is solely within the HPLMN when MAP version 1 is used, is outside the scope of IR-26. The introduction of MAP version 2 may give rise to a requirement for a relevant testcase to be included in this section.

2.3.1 Advice of Charge(Charging) for a Mobile Originated Call

Preconditions: HLR(a) entry contains "SS : AoCC : Provisioned". [Set by service provider].
MS(a) is registered in VPLMN(b).
The expected e-parameters of the CAI shall be known by the user of MS(a).

Action: MS(a) calls PSTN(b).

Maintain answered call for a time period which is greater than e7 but less than e7+e2.

Result: Successful result if MS(a) indicates a charge equal to [(e4*e3)+(e1*e3)].

Comment: When a call is first set-up and the initial CAI message is received, there is an initial fixed charge incremented in the CCM. A timer is also started on receipt of the initial CAI message. When the value of this timer reaches the value defined by e7, a further increment is added to the CCM. The timer is then reset and started again. When the timer then reaches the value defined by e2, a further increment is added to the CCM. The timer is subsequently reset and restarted until it reaches the e2 value again. This process continues for the duration of the call.

The AoC for voice calls is determined by the following formula:(see GSM 02.24 for further description).

AoC = e3 * [e4 + e1*INT(CDUR/(e7,e2))]

2.3.2 Advice of Charge(Information) for a Mobile Originated Call

Preconditions: HLR(a) entry contains "SS : AoCI : Provisioned". [Set by service provider].
MS(a) is registered in VPLMN(b).
The expected e-parameters of the CAI shall be known by the user of MS(a).

Action: MS(a) calls PSTN(b).

Maintain answered call for a time period which is greater than e7 but less than e7+e2.

Result: Successful result if MS(a) indicates a charge equal to [(e4*e3)+(e1*e3)].

Comment: This test case confirms correct operation of AoCI.

2.3.3 Advice of Charge(Charging) for a Mobile Terminated Call

2.3.3.1 Test of correct functionality

Preconditions: HLR(a) entry contains "SS : AoCC : Provisioned". [Set by service provider].
MS(a) is registered in VPLMN(b).
The expected e-parameters of the CAI shall be known by the user of MS(a).

Action: PSTN(b) calls MS(a).
Maintain answered call for a time period which is greater than e7 but less than e7+e2.

Result: Successful result if MS(a) indicates a charge equal to [(e4*e3)+(e1*e3)].

Comment: This testcase confirms correct operation of AoCC for a Mobile Terminated Call.

2.3.3.2 Test of non-support of AoCC

Preconditions: HLR(a) entry contains "SS : AoCC : Provisioned". [Set by service provider].
MS(a') is registered in VPLMN(b), but MS(a') does **not** support AoCC.

Action: PSTN(b) calls MS(a').

Result: Successful result if VPLMN(b) clears the call.

Comment: This test case confirms the correct non-support operation. This testcase is important due to fraud opportunities. Note, it is anticipated the all PLMNs will test Mobile Originating non-support themselves, but may omit Mobile Terminating testing because terminating calls within the HPLMN are usually not chargeable to the called MS.

2.4 Calling Line Identity Services

General comments to these CLI-test cases:

The tester must check before performing the CLI tests whether the HPLMN and/or the VPLMN are supporting the CLI-services. As a result of this check only **one** of the following three test sections has to be performed:-

Section 2.4.1: The tests in this section have to be performed in the case that both the HPLMN and the VPLMN support CLI services.

Section 2.4.2: The tests in this section have to be performed in the case that the HPLMN supports CLI services but the VPLMN does not support the CLI services.

Section 2.4.3: The tests in this section have to be performed in the case that the HPLMN does not support CLI services but the VPLMN supports the CLI services.

Limitations and Restrictions for these test instructions:

1. The whole area of SS data management is under review within SMG3 WPB /WPC, this may lead to changes in the future for the information stored in the HLR and therefore these test instructions may have to be modified.

2. The CLIP override mode is not possible to test without a legal release. Therefore it is a common precondition for all test cases in all chapters that the CLIR override mode is not provisioned per subscriber. CLIP override mode is disabled in all test cases.

3. In cases of Conditional Call Forwarding (CCF) there are some discrepancies between the GSM specifications GSM Phase 1 and GSM Phase 2. In the GSM Phase 1 specification Version 3.x.x the forwarded-to subscriber may receive the line identity of

both calling and forwarding parties. But in the GSM Phase 2 specification Version 4.x.x the forwarded-to subscriber may only receive the line identity of the calling party.

4. There are some differences in the supported CLIR Temporary mode services depending on the used MAP version: MAPv1: Supports only the temporary mode : presentation restricted. MAPv2: Supports both temporary modes: 1) presentation restricted; 2) presentation allowed

5. It has to be clarified before beginning testing whether the two PSTNs and the international interface consistently support CLI services (i.e all routes must support CLI services). Currently only a few PSTNs support CLI services and the use of CLI across international interfaces is rare. Consequently it is difficult to devise to test configuration in order to test the presentation of a CLI on a roamed MS, because the roaming leg of the call will have crossed the VPLMNs, PSTNs and the international interface.

6. There are some differences in the support of CLI services for mobiles (GSM Ph1/ GSM Ph2).

2.4.1. HPLMN supports CLI / VPLMN supports CLI:

2.4.1.1. MS interrogation of the Calling Line Identification Restriction - Permanent Mode

Preconditions:	HLR entry for MS(a) contains "SS : Calling Line Identification. Restriction (CLIR) : Permanent mode : Provisioned". MS(a) has location updated successfully in VPLMN(b). MS(a) is attached and idle.
Action:	MS(a) initiates an "Interrogate Calling Line Identification Restriction" with *#31#Send.
Result:	Successful result if MS(a) displays the information that CLIR is provisioned.
Comment:	This test case confirms an ability for a roamed MS to manage the Supplementary Service Information received from the VLR.

2.4.1.2. Calling Line Identification Presentation / Calling Line Identification Restriction - General

Preconditions:	HLR entry for MS_1 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR : Permanent mode : Provisioned". [Set by Service Provider.] HLR entry for MS_2 (a) contains "SS : CLIP: Provisioned " and "SS : CLIR : NOT provisioned". [Set by Service Provider.] HLR entry for MS_1 (b) contains "SS : CLIR: Provisioned / temporary mode-presentation restricted". [Set by Service Provider.] MS_1(a), MS_2(a) and MS_1(b) have location updated successfully in VPLMN(b).
Action:	(i) MS_2(a) calls MS_1(a)

(ii) MS_1(a) calls MS_2(a)
(iii) MS_1(b) calls MS_1(a) by dialling *31# MSISDN{MS_1(a)} SEND. This action shall suppress the CLIR only for this call.

Result: Successful result if:
in case (i) and (iii) the calling line identity is displayed at MS_1(a), and in case (ii) the calling line identity is not displayed at the called mobile.

Note: Action (i) may not present the CLI because a PSTN or international interface may have been crossed. (See Limitation Nr. 5)

Comment: This test case confirms that :
(i) CLI will be presented to the called party when the calling subscriber has CLIR NOT provisioned and the called party has CLIP provisioned.
(ii) CLI will not be presented to the called party when the calling subscriber has CLIR provisioned / permanent mode and the called party has CLIP provisioned.
(iii) CLI will be presented to the called party when the calling subscriber has CLIR provisioned in temporary mode (default presentation restricted) and has elected to suppress CLIR for this call.

2.4.1.3. Calling Line Identification Presentation / Restriction in Interworking Situation with Conditional Call Forwarding

Preconditions: HLR entry for MS_1 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR : Permanent mode : Provisioned" .[Set by Service Provider]
HLR entry for MS_2 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR :NOT provisioned". [Set by Service Provider]
HLR entry for MS_1 (b) contains "SS : CFNRy: Active : Forwarded-to-address is MS_1(a)". [Set by MS]
HLR entry for MS_2 (b) contains "SS : CFNRy: Active : Forwarded-to-address is MS_2(a)". [Set by MS]

MS_1(a), MS_2(a), MS_1(b) and MS_2(b) have location updated successfully in VPLMN(b).

Action: (i) Attempt a call from MS_2 (a) to MS_1(b). After a period of time during which MS_1(b) rings, call is diverted to MS_1(a). Answer the resultant call to MS_1(a).

(ii) Attempt a call from MS_1 (a) to MS_2(b). After a period of time during which MS_2(b) rings, call is diverted to MS_2(a). Answer the resultant call to MS_2(a).

Result: Successful result if in case (i) the calling line identity from MS_2(a) is displayed at MS_1(a) and in case (ii) the calling line identity from MS_1(a) is not displayed at MS_2(a).

Note: Action (i) may not present the CLI because a PSTN or international interface may have been crossed. (See Limitation Nr. 5)

Comment: This test case confirms that in case of Conditional Call Forwarding interactions only the subscriber who has CLIP provisioned will receive the line identity from the calling party as tested in case (i). In the case (ii) when the calling party has the Restriction to present the CLI provisioned then no CLI should be presented.

2.4.1.4. Calling Line Identification Presentation / Calling Line Identification Restriction -General

Preconditions: HLR entry for MS_1 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR : Temporary mode : Default presentation allowed". [Set by Service Provider.]
HLR entry for MS_2 (a) contains "SS : CLIP: Provisioned " and "SS : CLIR : NOT provisioned". [Set by Service Provider.]

MS_1(a) and MS_2(a) have location updated successfully in VPLMN(b).

Action: (i) MS_1(a) calls MS_2(a) by dialling #31# MSISDN{MS_1(a)} SEND. This action shall invoke CLIR only for this call.

(ii) MS_2(a) calls MS_1(a).

Result: Successful result if:
in case (i) the calling line identity is not displayed at MS_2(a), and in case (ii) the calling line identity is displayed at the called mobile.

Note: Action (ii) may not present the CLI because a PSTN or international interface may have been crossed. (See limitation Nr. 5)

Comment: This test case confirms that :
(i) CLI will not be presented to the called party when the calling subscriber has CLIR provisioned in temporary mode (default presentation allowed) and has elected to invoke CLIR for this call.
(ii) CLI will be presented to the called party when the calling subscriber has CLIR not provisioned and the called party has CLIP provisioned.

2.4.2 HPLMN supports CLI / VPLMN does not support CLI:

2.4.2.1. MS interrogation of the Calling Line Identification Restriction - Permanent Mode

Preconditions: HLR entry for MS(a) contains "SS: Calling Line Identification Restriction (CLIR): Permanent mode: Provisioned."
MS(a) has location updated successfully in VPLMN(b).
MS(a) is attached and idle.

Action: MS(a) initiates an "Interrogate Calling Line Identification" with *#31#Send.

Result: Successful result if MS(a) displays an error message e.g. "SS not available".

Comment: This test case confirms that no interrogation of the CLI Services is possible in a VPLMN(b) which is not supporting the CLI Services.

2.4.2.2. Calling Line Identification Presentation / Calling Line Identification Restriction - General

Preconditions: HLR entry for MS_1 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR : Permanent mode : Provisioned". [Set by Service Provider.]
HLR entry for MS_2 (a) contains "SS : CLIP: Provisioned " and "SS : CLIR : NOT provisioned". [Set by Service Provider.]
MS_1(a) and MS_2(a) have location updated successfully in VPLMN(b).

Action: (i) MS_2(a) calls MS_1(a).
(ii) MS_1(a) calls MS_2(a).

Result: Successful result if case (i) and (ii) the CLI of the calling party is not displayed at the called party.

Comment: This test case confirms that the CLI will not be displayed at the called party when the VPLMN is not supporting the CLI Services.
If a VPLMN does not support the CLI Services then either the line identity is sent with a restriction indicator or it may not be sent at all.

2.4.2.3. Calling Line Identification Presentation / Restriction in Interworking Situation with Conditional Call Forwarding

Preconditions: HLR entry for MS_1 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR : Permanent mode : Provisioned" . [Set by Service Provider.]
HLR entry for MS_2 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR : NOT Provisioned" . [Set by Service Provider.]
HLR entry for MS_1 (b) contains "SS : CFNRy: Active : Forwarded-to-address is MS_1(a)" .[Set by MS.]

HLR entry for MS_2 (b) contains "SS : CFNRy: Active : Forwarded-to-address is MS_2(a)" . [Set by MS.]

MS_1(a), MS_2(a), MS_1(b) and MS_2(b) have location updated successfully in VPLMN(b).

Action: (i) Attempt a call from MS_2(a) to MS_1(b). After a period of time during which MS_1(b) rings, call is diverted to MS_1(a). Answer the resultant call to MS_1(a).

(ii) Attempt a call from MS_1(a) to MS_2(b). After a period of time during which MS_2(b) rings, call is diverted to MS_2(a). Answer the resultant call to MS_2(a).

Result: Successful result if:
in case (i) the calling line identities are not displayed at MS_1(b) and MS_1(a).
in case (ii) the calling line identities are not displayed at MS_2(b) and MS_2(a).

Comment: These test cases confirm that in the case when the VPLMN does not support the CLI Services, and in the case of conditional call forward interactions the subscriber who has CLIP provisioned will not receive the line identity from the calling party.
Because the VPLMN does not support the CLI services then either the CLI is sent with a restriction indicator or, it may not be sent at all.

2.4.2.4. Calling Line Identification Presentation/Calling Line Identification Restriction - General

Preconditions: HLR entry for MS_1 (a) contains "SS : CLIP: Provisioned" and "SS : CLIR : Temporary mode : Default presentation allowed". [Set by Service Provider.]
HLR entry for MS_2 (a) contains "SS : CLIP: Provisioned " and "SS : CLIR : NOT provisioned". [Set by Service Provider.]

MS_1(a) and MS_2(a) have location updated successfully in VPLMN(b).

Action: (i) MS_1(a) calls MS_2(a) by dialling #31#MSISDN{MS_1(a)} SEND. This action shall invoke CLIR only for this call.

(ii) MS_2(a) calls MS_1(a).

Result: Successful result if case (i) and (ii) the CLI of the calling party is not displayed at the called party.

Comment: This test case confirms that the CLI will not be displayed at the called party when the VPLMN is not supporting the CLI Services.
If a VPLMN does not support the CLI Services then either the line identity is sent with a restriction indicator or it may not be sent at all.

Action (i) may be not successful due to the fact that the MMI will be not supported by the VPLMN. As a result the call will be rejected by the VPLMN.

2.4.3. HPLMN does not support CLI / VPLMN supports CLI:

2.4.3.1. MS interrogation of the Calling Line Identification Restriction - Permanent Mode

Preconditions: HLR has no entry for MS(a) about CLI Services.

MS(a) has location updated successfully in VPLMN(b).
MS(a) is attached and idle.

Action: MS(a) initiates an "Interrogate Calling Line Identification Restriction" with *#31#Send.

Result: Successful result if MS(a) displays the information that CLIR is provisioned.

Comment: This test case confirms that the MSC/VLR shall behave in the way that an implicit CLIR subscription is performed for the subscriber roaming from an PLMN which is not supporting the CLI Services.

2.4.3.2. Calling Line Identification Presentation / Calling Line Identification Restriction - General

Preconditions: HLR entry contains no information about CLI Services for MS_1(a).
HLR entry for MS_1(b) contains "SS : CLIP : Provisioned" and "SS : CLIR : Permanent mode : Provisioned". [Set by Service Provider.]

MS_1(a) and MS_1(b) have location updated successfully in VPLMN(b).

Action: (i) Attempt a call from MS_1(a) to MS_1(b).
(ii) Attempt a call from MS_1(b) to MS_1(a).

Result: Successful result if in case (i) and (ii) the line identity is not displayed at the called parties.

Comment: This test case confirms that in case of the HPLMN is not supporting the CLI services no line identity will be presented at the called party.

The MSC/VLR shall behave in the way that an implicit CLIR subscription is performed for the subscriber roaming from an PLMN which is not supporting the CLI Services.

2.4.3.3. Calling Line Identification - Restriction / Permanent Mode in Interworking Situation with Conditional Call Forwarding

Preconditions:	HLR entry contains no information about CLI Services for MS_1(a). HLR entry for MS_2(a) contains "SS : CFNRy : Active : Forwarded-to-address is MS_1(b)" . [Set by MS.] HLR entry for MS_1(b) contains "SS : CLIP : Provisioned" and "SS : CLIR : Permanent mode : Provisioned". [Set by Service Provider.] MS_1(a), MS_2(a) and MS_1(b) have location updated successfully in VPLMN(b).
Action:	Attempt a call from MS_1(a) to MS_2(a). After a period of time during which MS_2(a) rings, call is diverted to MS_1(b). Answer the resultant call to MS_1(b).
Result:	Successful result if the line identity is not displayed at MS_2(a) and not at MS_1(b).
Comment:	This test case confirms that in case of the HPLMN not supporting CLI services then no line identity will be presented at the called party even following Conditional Call Forwarding.

2.4.3.4. Calling Line Identification Presentation/Calling Line Identification Restriction - General

Preconditions:	HLR has no entry for MS1 (a) about CLI Services. HLR entry for MS1 (b) contains "SS : CLIP: Provisioned ". [Set by Service Provider.] MS1(a) and MS1(b) have location updated successfully in VPLMN(b).
Action:	MS_1(a) calls MS1(b) by dialling #31# MSISDN{MS_1(b)} SEND.
Result:	Successful result if the call is established and the Line Identity is not displayed at MS_1(b).
Comment:	This test case confirms that in case of the HPLMN is not supporting the CLI services no line identity will be presented at the called party. The MSC/VLR shall behave in the way that an implicit CLIR subscription is performed for the subscriber roaming from a PLMN which is not supporting the CLIR Services.

2.5 Connected Line Identity Services

TBD

2.6 Closed User Group

Preconditions:	Respective HLR entries for MS(a) and for MS(b) contain "SS : CUG : Provisioned with General subscription options per Subscriber:- -Subscription to CUGs: same CUG for MS(a) and for MS(b); -Intra CUG restrictions: None designated; -Applicability: All Basic Services and per Basic service group subscription options; -Preferential CUG: None designated; -Type of inter CUG accessibility: None designated [Set by Service Provider.] MS(a) and MS(b) have location updated successfully in VPLMN.
Action:	MS(a) sets-up a CUG call with a correct CUG index to MS(b).
Result:	Successful result if the call is completed and if the incoming CUG call is indicated to MS(b) with the appropriate CUG index.
Comment:	This test case confirms that the CUG data has been successfully transferred to VPLMN and the ability for a roamed MS to set-up a CUG call.

2.7 Call Completion to a Busy Subscriber

TBD

2.8 Call Transfer

TBD

2.9 Operator Determined Barring

General comments on these ODB test cases:

Before performing the ODB testcases the tester must check whether the VPLMN supports the ODB service for MAPv2. Depending on this check three different configurations are possible:

(a) VPLMN supports ODB services and MAPv2.
(b) VPLMN supports no/not all ODB service/s and MAPv2.
(c) VPLMN supports no MAPv2.

In case (a) the ODB data which is sent from the HLR should be directly accepted from the VLR, however in case (b) and (c) the ODB data or MAPv2 message is first rejected by the VLR and must therefore be repeated by use of the corresponding call barring supplementary services for MAPv2 (case (b)) or MAPv1 (case (c)). Hence the majority of the testcases are expected to be successful in all three configurations with the exception of

the third part of testcase 2.9.3 (interrogation of supplementary service) in configuration (b) and (c).

As a precondition it has to be ensured by HPLMN and VPLMN that ODB can be activated even if any call forwarding service is registered and active in VLR and HLR.

2.9.1 Operator Determined Barring of All Outgoing Calls

Preconditions:	HLR entry contains "ODB : BAOC : Active".[Set by HLR Admin.]
Action:	(i) MS(a) attempts Emergency Call [112 keyed on MS]. (ii) MS(a) attempts call to PSTN.
Result:	Successful result if call "i" succeeds and call "ii" fails.
Comment:	This test case confirms the support of ODB BOAC. In cases where ODB BOAC or MAPv2 is not supported by the VPLMN the correct rejection of ODB BOAC and fallback to supplementary service BOAC is checked.

2.9.2 ODB Barring of Outgoing Premium Rate Calls (Information or Entertainment)

Preconditions:	HLR entry contains "ODB: BPR (Info/Entert):Active".[Set by HLR Admin.]
Action:	(i) MS(a) attempts call to local PSTN. (ii) MS(a) attempts outgoing call to an information/ entertainment service, which is defined as a premium rate service for information/entertainment by the VPLMN.
Result:	Successful result if call "i" succeeds, and call "ii" fails.
Comment:	This test case confirms the support of ODB BPR (Info/Entert). If the VPLMN does not support ODB BPR (Info/Entert), it is dependent from the implementation of the HPLMN if an alternative barring service should be used.

2.9.3. Operator Determined Barring of Supplementary Services Management

Preconditions:	HLR entry contains "ODB: BSSM : Active".[Set by HLR Admin].
Action:	(i) MS(a) attempts activation of SS: BOAC. (ii) MS (a) attempts call to local PSTN. (iii) MS(a) attempts interrogation on SS: BOAC.
Result:	Successful result if actions "i" and "iii" both fail and "ii" succeeds .

Comment: This test case confirms the support of ODB SSM.
If the VPLMN does not support ODB BSSM, the interrogation of SS: BOAC will be possible.

2.10 Unstructured Supplementary Service Data

General comments on the USSD test case:

USSD is specified both in the GSM Phase 1 and in the GSM Phase 2 Specifications.

Section 2.10.1 defines a test which uses the Phase 1 capability.
The use of this testcase assumes that the HPLMN has arranged for the HLR to support a USSD application. If no USSD application (ie the capability for the HLR to respond to a USSD operation) has been implemented then this test case cannot be performed successfully. The specification and implementation of HLR USSD applications is outside the scope of the GSM standards. However the behaviour of MSC/VLRs is addressed in GSM standards and it is anticipated that support for USSD in VPLMNs will be reasonably widespread. Therefore it is likely that this testcase may be performed often in a uni-directional manner between two PLMNs.

Section 2.10.2 defines a test which uses the Phase 2 capability.
The use of this testcase assumes that the HPLMN has arranged for the HLR to support a USSD Phase 2 application that involves the three functions in USSD Phase 2 (Mobile Originated USSD, Network Initiated USSD Request and Network Initiated USSD Notify). If no USSD application (i.e. the capability for the HLR to respond to a USSD operation) has been implemented or if the USSD application does not use the three functions in USSD Phase 2 then this test case cannot be performed successfully.
The specification and implementation of HLR USSD applications is outside the scope of the GSM standards. However the behaviour of MSC/VLRs is addressed in GSM standards and it is anticipated that support for USSD in VPLMNs will be reasonably widespread. Therefore it is likely that this testcase may be performed often in a uni-directional manner between two PLMNs.

2.10.1 USSD Phase 1 General Test

Preconditions: HLR(a) supports a USSD application. Testing staff in VPLMN have information on the MMI and operation of the USSD application.
MS(a) supports USSD. Most types of recently manufactured MS do support USSD. The most widespread exception is the original version of the Nokia 2110, but this has been rectified on the 2110i.

Action: MS(a) enters the application's USSD string and "SEND"
(e.g. *#100# SEND)

Result: Successful result if the MS(a) displays the expected IA5 character string within [15] seconds
(e.g. The Directory Number of MS(a).)

Comment: This test case confirms the support of USSD in the VPLMN(b) and the transport of related MAP operations between VPLMN(b) and HPLMN(a).

2.10.2 USSD Phase 2 General Test

Preconditions: HLR(a) supports a USSD Phase 2 application that is initiated by the MS and includes the use of Network Initiated USSD Request and Network Initiated USSD Notify. Testing staff in VPLMN have information on the MMI and operation of the USSD application.
MS(a) supports USSD Phase 2.
VPLMN supports USSD Phase 2

NOTE: This test case assumes the HLR application supports the USSD operations in the following order:
Receipt of ProcessUnstructuredSS-Request (arg)
Send UnstructuredSS-Request (arg)
Receipt of UnstructuredSS-Request (res)
Send UnstuctturedSS-Notify (arg)
Receipt of UnstructedSS-Notify (res) – empty
Send ProcessUnstructuredSS-Request (res)

Action: MS(a) enters the application's USSD string and "SEND"
(e.g. *#110# SEND)

Result: MS(a) displays a request for information within [15] seconds (e.g. "Enter Number")

Action: MS(a) enters a number (e.g. 12345)

Result: MS(a) displays the expected character string within [15] seconds (e.g. "Number Received")

Result: Successful result if the MS(a) displays the next expected character string within [15] seconds
(e.g. "Number Correct")

Comment: This test case confirms the support of USSD Phase 2 in the VPLMN(b) and the transport of related MAP operations between VPLMN(b) and HPLMN(a).

END OF SPECIFICATION

Appendix C

Test Results

C 1 Network Information

This section is identical to IR 24 Appendix A Section A1. Therefore if both IR-24 and IR-26 tests are being performed simultaneously then only the first statement below and IR 24 Appendix A need be filled in.

Is the information contained in IR-24 Appendix A test results dated..... to be used ? [Yes/No].....

C.1.1. Network Operator Information

HPLMN (a).....

VPLMN (b).....

Date of Tests
.....

Testing personnel PLMN(a).....

Testing personnel PLMN(b).....

HLR Identity/Identities.....
.....

HLR Manufacturer(s).....
.....

HLR Software Build Level(s).....
.....

GMSC Identity/Identities.....
.....

GMSC Manufacturer(s).....
.....

(continued overleaf)

GMSC Software Build Level(s).....
.....

VMSC Identity/Identities.....
.....

VMSC Manufacturer(s).....
.....

VMSC Software Build Level(s).....

Comments

C.1.2. Toll Ticket Configuration

Call Toll Ticketing in use at VMSC? [Yes/No].....

Supplementary Service activity Toll Ticketing in use at VMSC ? [Yes/No].....

Toll Ticketing in use at GMSC for Roaming call legs ? [Yes/No].....

Will VMSC Toll Ticket file be transferred to VPLMN Computing Centre ? [Yes/No].....

Will VMSC Toll Ticket file be transferred to the HPLMN from VPLMN ? [Yes/ No].....

Method of transfer of Toll Ticket File to HPLMN [via TADIG mechanism/other].....

Comments

Note: If Toll Ticketing is not in use then the line items marked with an asterisk (*) may be omitted from these Test Result Sheets.

C 2 Supplementary Services

C 2.1 Call Waiting and Call Hold

C 2.1.1 Call Hold

(a) MSISDN of MS(a) .....

(b) PSTN(b) number .....

(c) Is PSTN(b) given an appropriate indication that the call has been placed on hold ?

[Yes/No].....

(d) Is call retrieved successfully ? [Yes/No].....

*(e) Time of perceived answer of call between MS(a) and PSTN(b)

.....hr.....min.....sec

*(f) Chargeable call duration (held state included) .....sec

(g) Comments

(h) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

C 2.1.2 Call Waiting

(a) MSISDN of MS(a) .....

(b) PSTN(b_1) number .....

(c) PSTN(b_2) number .....

(d) Is PSTN(b_2) given an indication (e.g. ringing tone) that MS(a) is being informed of the incoming call ?

[Yes/No].....

(e) Is MS(a) informed of the incoming call by an appropriate call waiting indication ?

[Yes/No].....

(f) Is MS(a) connected to PSTN(b_2) ?

[Yes/No].....

*(g) Time of perceived answer of call between MS(a) and PSTN(b_1)

.....hr.....min.....sec

*(h) Chargeable call duration .....sec

*(i) Time of perceived answer of call between MS(a) and PSTN(b_2)

.....hr.....min.....sec

*(j) Chargeable call duration .....sec

(k) Comments

(l) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

* This information is not needed if no Toll ticket comparison is being done.

C 2.2 Multiparty

(a) MSISDN of MS(a) .....

(b) PSTN(b_1) number .....

(c) PSTN(b_2) number .....

(d) Is a conference call set-up between MS(a), PSTN(b_1) and PSTN(b_2)?
[Yes/No].....

(e) Time of perceived answer of call between MS(a) and PSTN(b_1)
.....hr.....min.....sec

*(f) Chargeable call duration (held state included) for MS(a) to PSTN(b_1)
.....sec

*(g) Time of perceived answer of call between MS(a) and PSTN(b_2)
.....hr.....min.....sec

*(h) Chargeable call duration for MS(a) to PSTN(b_2)
.....sec

(i) Comments

(j) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

C 2.3 Advice of Charge

C 2.3.1 Advice of Charge (Charging) for a Mobile Originated Call

(a) MSISDN of MS(a) .....

(b) PSTN(b) number .....

(c) E - Parameter values

e1 .....

e2 .....

e3 .....

e4 .....

e7 .....

(d) What AoC value is displayed by the MS(a) ?

AoC Value .....

(e) Does MS(a) indicate a charge equal to [(e4*e3) + (e1*e3)] ?

[Yes/No] .....

(f) Time of perceived answer of call between MS(a) and PSTN(b)

.....hr.....min.....sec

(g) Chargeable call duration

.....sec

(h) Comments

(i) Testcase Result [Pass/Fail/Not performed] .....

Signature of Tester ..... Date .....

C 2.3.2 Advice of Charge (Information) for a Mobile Originated Call

(a) MSISDN of MS(a) .....

(b) PSTN(b) number .....

(c) E - Parameter values

e1 .....

e2 .....

e3 .....

e4 .....

e7 .....

(d) What AoC value is displayed by the MS(a) ?
AoC Value .....

(e) Does MS(a) indicate a charge equal to [(e4*e3) + (e1*e3)] ?
[Yes/No].....

(f) Time of perceived answer of call between MS(a) and PSTN(b)
.....hr.....min.....sec

(g) Chargeable call duration
.....sec

(h) Comments

(i) Testcase Result [Pass/Fail/Not performed] .....

Signature of Tester ..... Date .....

C 2.3.3 Advice of Charge (Charging) for a Mobile Terminated Call

C 2.3.3.1 Test of correct functionality

(a) MSISDN of MS(a) .....

(b) PSTN(b) number .....

(c) E - Parameter values

e1 .....

e2 .....

e3 .....

e4 .....

e7 .....

(d) What AoC value is displayed by the MS(a) ?
AoC Value .....

(e) Does MS(a) indicate a charge equal to [(e4*e3) + (e1*e3)] ?
[Yes/No].....

(f) Time of perceived answer of call between MS(a) and PSTN(b)
.....hr.....min.....sec

(g) Chargeable call duration .....sec

(h) Comments

(i) Testcase Result [Pass/Fail/Not performed] .....

Signature of Tester ..... Date .....

C 2.3.3.2 Test of non-support of AoCC

(a) PSTN(b) number .....

(b) MSISDN of MS(a') .....

(c) Is the call cleared when PSTN(b) calls MS(a') ?

[Yes/No] .....

(d) Comments

(e) Testcase Result [Pass/Fail/Not performed] .....

Signature of Tester ..... Date .....

C 2.4 Calling Line Identity

Note: According to the check whether the HPLMN and/or the VPLMN is supporting the CLI-services, only **one** of the CLI test sheet chapters have to be filled out. (C 2.4.1 or C 2.4.2 or C 2.4.3)

Do the crossed PSTNs and international interfaces consistently support the CLI-services? (To be filled in irrespective of the subsequent testcase section performed.)

.....[YES / NO]

C 2.4.1. HPLMN supports CLI / VPLMN supports CLI:

C 2.4.1.1. MS interrogation of the Calling Line Identification Restriction - Permanent Mode

(a) MSISDN of MS(a) .....

(b) Key operations performed at MS(a) .....

(c) Time of start of SS activity (i.e. SEND key operation)
.....hr.....min.....sec

(d) Delay between SEND key operation and receipt of Display information .....sec

(e) Information displayed at MS(a)
.....

.....

(f) Information about CLI-services held in HLR record
.....

.....

(g) Does MS(a) display the correct of information about CLI-services held in HLR record ?
[Yes / No] .....

(h) Comments

(i) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

C 2.4.1.2 Calling Line Identification Presentation - General / Calling Line Identification Restriction - Temporary Mode

I) General:

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_2(a) .....

(c) MSISDN of MS_1(b) .....

II) Actions to be performed:

Action (i) : MS_2(a) calls MS_1(a):

(d) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(e) Time of perceived answer of call .....hr.....min.....sec

*(f) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(g) Is the MSISDN of MS_2(a) displayed at MS_1(a) ? [Yes / No].....

Action (ii) : MS_1(a) calls MS_2(a):

(h) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(i) Time of perceived answer of call .....hr.....min.....sec

*(j) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(k) Is the MSISDN of MS_1(a) displayed at MS_2(a) ? [Yes / No].....

Action (iii) : MS_1(b) calls MS_1(a) with key operation:

(l) Key operations performed at MS_1(b)
.....

(m) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(n) Time of perceived answer of call .....hr.....min.....sec

*(o) Chargeable Call Duration (i.e. perceived answer until end of call) .....sec

(p) Is the MSISDN of MS_1(b) displayed at MS_1(a) ? [Yes / No].....

III) Results of this testcase and comments:

(q) Comments

(r) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C 2.4.1.3 Calling Line Identification Presentation / Restriction in Interworking Situation with Conditional Call Forwarding

I) General:

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_2(a) .....

(c) MSISDN of MS_1(b) .....

(d) MSISDN of MS_2(b) .....

II) Actions to be performed:

Action (i) : MS_2(a) calls MS_1(b):

(e) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(f) Time of perceived answer of call .....hr.....min.....sec

*(g) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(h) Is the MSISDN of MS_2(a) displayed at MS_1(a) ? [Yes / No].....

Action (ii) : MS_1(a) calls MS_2(b):

(i) Time of start of call (i.e. SEND key operation) .....hr.....min.....sec

*(j) Time of perceived answer of call .....hr.....min.....sec

*(k) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(l) Is the MSISDN of MS_1(a) displayed at MS_2(a) ? [Yes / No].....

III) Results of this testcase and comments:

(m) Comments

(n) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C.2.4.1.4. Calling Line Identification Presentation /Calling Line Identification Restriction-General

I) General:

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_2(a) .....

II) Actions to be performed:

Action (i) : MS_1(a) calls MS_2(a) by dialling #31#MSISDN{MS_2(a)}:

(c) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(d) Time of perceived answer of call .....hr.....min.....sec

*(e) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(f) Is the MSISDN of MS_1(a) displayed at MS_2(a) ? [Yes / No].....

Action (ii) : MS_2(a) calls MS_1(a):

(g) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(h) Time of perceived answer of call .....hr.....min.....sec

*(i) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(j) Is the MSISDN of MS_2(a) displayed at MS_1(a) ? [Yes / No].....

III) Results of this testcase and comments:

(k) Comments

(l) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done

C 2.4.2 HPLMN supports CLI / VPLMN does not support CLI:

C 2.4.2.1 MS interrogation of the Calling Line Identification Restriction - Permanent Mode

(a) MSISDN of MS(a) .....

(b) Key operations performed at MS(a) .....

(c) Time of start of SS activity (i.e. SEND key operation)
.....hr.....min.....sec

(d) Delay between SEND key operation and receipt of Display information
.....sec

(e) Information displayed at MS(a)

.....

.....

(f) Does MS(a) display an error message e.g.: "SS not available." ?

[Yes / No] .....

(g) Comments

(h) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

C 2.4.2.2 Calling Line Identification Presentation - General / Calling Line Identification Restriction - Temporary Mode

I) General:

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_2(a) .....

II) Actions to be performed:

Action (i) : MS_2(a) calls MS_1(a):

(c) Time of start of call (i.e. SEND key operation) .....hr.....min.....sec

*(d) Time of perceived answer of call .....hr.....min.....sec

*(e) Chargeable Call Duration (i.e. perceived answer until end of call) .....sec

(f) Is the MSISDN of MS_2(a) displayed at MS_1(a) ? [Yes / No].....

Action (ii) : MS_1(a) calls MS_2(a):

(g) Time of start of call (i.e. SEND key operation) .....hr.....min.....sec

*(h) Time of perceived answer of call .....hr.....min.....sec

*(i) Chargeable Call Duration (i.e. perceived answer until end of call) .....sec

(j) Is the MSISDN of MS_1(a) displayed at MS_2(a) ? [Yes / No].....

III) Results of this testcase and comments:

(k) Comments

(l) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C 2.4.2.3 Calling Line Identification Presentation / Restriction in Interworking Situation with Conditional Call Forwarding

I) General:

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_2(a) .....

(c) MSISDN of MS_1(b) .....

(d) MSISDN of MS_2(b) .....

II) Actions to be performed:

Action (i) : MS_2(a) calls MS_1(b):

(e) Time of start of call (i.e. SEND key operation) .....hr.....min.....sec

*(f) Time of perceived answer of call .....hr.....min.....sec

*(g) Chargeable Call Duration (i.e. perceived answer until end of call) .....sec

(h) Is the MSISDN of MS_2(a) displayed at MS_1(a) ? [Yes / No].....

(i) Is the MSISDN of MS_2(a) displayed at MS_1(b) ? [Yes / No].....

Action (ii) : MS_1(a) calls MS_2(b):

(j) Time of start of call (i.e. SEND key operation) .....hr.....min.....sec

*(k) Time of perceived answer of call .....hr.....min.....sec

*(l) Chargeable Call Duration (i.e. perceived answer until end of call) .....sec

(m) Is the MSISDN of MS_1(a) displayed at MS_2(a) ? [Yes / No].....

(n) Is the MSISDN of MS_1(a) displayed at MS_2(b) ? [Yes / No].....

III) Results of this testcase and comments:

(o) Comments

(p) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C.2.4.2.4 Calling Line Identification Presentation /Calling Line Identification Restriction-General

I) General:

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_2(a) .....

II) Actions to be performed:

Action (i) : MS_1(a) calls MS_2(a) by dialling #31#MSISDN{MS_2(a)}:

(c) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(d) Time of perceived answer of call .....hr.....min.....sec

*(e) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(f) Is the MSISDN of MS_1(a) displayed at MS_2(a) ? [Yes / No].....

Action (ii) : MS_2(a) calls MS_1(a):

(g) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(h) Time of perceived answer of call .....hr.....min.....sec

*(i) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(j) Is the MSISDN of MS_2(a) displayed at MS_1(a) ? [Yes / No].....

III) Results of this testcase and comments:

(k) Comments

(l) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C 2.4.3 HPLMN does not support CLI / VPLMN supports CLI:

C 2.4.3.1 MS interrogation of the Calling Line Identification Restriction - Permanent Mode

(a) MSISDN of MS(a) .....

(b) Key operations performed at MS(a) .....

(c) Time of start of SS activity (i.e. SEND key operation)
.....hr.....min.....sec

(d) Delay between SEND key operation and receipt of Display information
.....sec

(e) Information displayed at MS(a)
.....

.....

(f) Does MS(a) display that CLIR is provisioned ? [Yes / No] .....

(g) Comments

(h) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

C 2.4.3.2. Calling Line Identification Presentation - General / Calling Line Identification Restriction - Temporary Mode

I) General:

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_1(b) .....

II) Actions to be performed:

Action (i) : MS_1(a) calls MS_1(b):

(c) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(d) Time of perceived answer of call .....hr.....min.....sec

*(e) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(f) Is the MSISDN of MS_1(a) displayed at MS_1(b) ? [Yes / No].....

Action (ii) : MS_1(b) calls MS_1(a):

(g) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(h) Time of perceived answer of call .....hr.....min.....sec

*(i) Chargeable Call Duration (i.e. perceived answer until end of call)
.....sec

(j) Is the MSISDN of MS_1(b) displayed at MS_1(a) ? [Yes / No].....

III) Results of this testcase and comments:

(k) Comments

(l) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C 2.4.3.3 Calling Line Identification - Restriction / Permanent Mode in Interworking Situation with Conditional Call Forwarding

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_2(a) .....

(c) MSISDN of MS_1(b) .....

(d) Time of start of call (i.e. SEND key operation) .....hr.....min.....sec

*(e) Time of perceived answer of call .....hr.....min.....sec

*(f) Chargeable Call Duration (i.e. perceived answer until end of call) .....sec

(g) Is the MSISDN of MS_1(a) displayed at MS_2(a) ? [Yes / No].....

(h) Is the MSISDN of MS_1(a) displayed at MS_1(b) ? [Yes / No].....

(i) Comments

(j) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C.2.4.3.4 Calling Line Identification Presentation /Calling Line Identification Restriction - General

(a) MSISDN of MS_1(a) .....

(b) MSISDN of MS_1(b) .....

Action : MS_1(a) calls MS_1(b) by dialling #31#MSISDN{MS_1(b)}:

(c) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(d) Time of perceived answer of call
.....hr.....min.....sec

*(e) Chargeable Call Duration (i.e. perceived answer until end of call
.....sec

(f) Is the MSISDN of MS1(a) displayed at MS1(b)? [Yes / No].....

(g) Comments

(h) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester.....Date.....

* This information is not needed if no Toll ticket comparison is being done.

C 2.6 Closed User Group

(a) MSISDN of MS(a) .....

(b) IMSI of MS(a) .....

(c) CUG index of MS(a) .....

(d) MSISDN of MS(b) .....

(e) IMSI of MS(b) .....

(f) CUG index of MS(b) .....

(g) Is there a CUG call between MS(a) and MS(b)? [Yes/No].....

(h) Received CUG index in MS(b)

.....

*(i) Time of perceived answer of call between MS(a) and MS(b)

.....hr.....min.....sec

*(j) Chargeable call duration for MS(a) to MS(b)

.....sec

(k) Comments

(l) Test case Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

C 2.9 Operator Determined Barring Test Results

C 2.9.1 ODB Barring of All Outgoing Calls

(a) MSISDN of MS (a) .....

(b) Emergency code keyed [112 etc] .....

*(c) Time of start of emergency call (i.e. SEND key operation)
.....hr.....min.....sec

*(d) Time of perceived answer of call .....hr.....min.....sec

*(e) Chargeable Call Duration (i.e. perceived answer until end of call).....sec
(To be measured irrespective of charging policy for emergency calls in VPLMN)

(f) Emergency Call successful [Yes/No].....

(g) PSTN number keyed .....

(h) PSTN call successful [Yes/No].....

(i) VLR Record contents:

BOAC type [ODB/SS].....

(j) Comments

(k) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

* This information is not needed if no Toll ticket comparison is being done.

C 2.9.2 ODB Barring of Outgoing Premium Rate Calls (Information or Entertainment)

(a) MSISDN of MS (a) .....

(b) PSTN number keyed .....

*(c) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(d) Time of perceived answer of call .....hr.....min.....sec

*(e) Chargeable Call Duration (i.e. perceived answer until end of call).....sec

(f) PSTN Call successful [Yes/No].....

(g) National Premium Rate Number keyed .....
Type of Premium Rate Number [Information/Entertainment]

(h) Premium Rate call successful [Yes/No].....

(i) VLR Record contents:

Type of barring [ODB: BPR (Info/Enter) / ...../ none]

(j) Comments

(k) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

* This information is not needed if no Toll ticket comparison is being done.

C 2.9.3 ODB Barring of Supplementary Services Management

(a) MSISDN of MS (a) .....

*(b) Time of start SS BOAC activity (i.e. SEND key operation)
.....hr.....min.....sec

*(c) Delay between SEND key operation and receipt of display information
....sec

(d) Information displayed at MS(a).....

.....

(e) PSTN number keyed .....

*(f) Time of start of call (i.e. SEND key operation)
.....hr.....min.....sec

*(g) Time of perceived answer of call .....hr.....min.....sec

*(h) Chargeable Call Duration (i.e. perceived answer until end of
call).....sec

(i) PSTN Call successful [Yes/No].....

*(j) Time of start SS BOAC interrogation (i.e. SEND key operation)
.....hr.....min.....sec

*(k) Delay between SEND key operation and receipt of display information
....sec

(l) Information displayed at MS(a).....
.....

(m) Comments

(n) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....
* This information is not needed if no Toll ticket comparison is being done.

C 2.10 Unstructured Supplementary Service Data

C 2.10.1 USSD (Phase 1) General Test from Mobile Station

(a) MSISDN of MS(a) .....

(b) USSD string keyed [e.g.*#100# SEND] .....

*(c) Time of. SEND key operation .....hr.....min.....sec

(d) Delay between SEND key operation and MS(a) displaying information .....sec

(e) Information displayed at MS(a) .....

(f) Did HPLMN(a) personnel agree that the information displayed was correct? [Yes/No].....

(g) Comments

(h) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

* This information is not needed if no Toll ticket comparison is being done.

C 2.10.2 USSD (Phase 2) General Test from Mobile Station

(a) MSISDN of MS(a) .....

(b) USSD string keyed [e.g.*#110# SEND] .....

*(c) Time of. SEND key operation .....hr.....min.....sec

(d) Delay between SEND key operation and MS(a) displaying request for information .....sec

(e) Request for information text string displayed at MS(a) [e.g Enter number]. .....

(f) Information entered at MS(a) [e.g.12345<SEND>]……

(g) Delay between entering digit string and MS(a) displaying second character string ……sec

(h) Second string text displayed at MS(a) [e.g. Number received] …….

(i) Delay between receipt of second character string and final character string ……sec

(j) Final string text displayed at MS(a) [e.g. Number correct]…….

(k) Did HPLMN(a) personnel agree that all the information displayed was correct? [Yes/No].....

(l) Comments

(m) Testcase Result [Pass/Fail/Not performed].....

Signature of Tester..... Date .....

* This information is not needed if no Toll ticket comparison is being done.

END OF TEST CASES

Appendix D

Completion Certificate

IREG Stage 4 Testing for Inter-PLMN Roaming
for Phase 2 Supplementary Services

This certificate confirms the successful completion of IREG Stage 4 Tests (Phase 2 Supplementary Services) for Mobile Subscribers of..... PLMN visiting .....PLMN.

The Supplementary Services tested were:-

Call Hold [Pass / Fail / Not applicable].....
Call Waiting [Pass / Fail / Not applicable].....
Multiparty Services [Pass / Fail / Not applicable].....
Advice of Charge (Charging) Service [Pass / Fail / Not applicable].....
Advice of Charge (Information) Service [Pass / Fail / Not applicable].....
Calling Line Identity Services [Pass / Fail / Not applicable].....…
Connected Line Identity Services [Pass / Fail / Not applicable].....
Closed User Group Services [Pass / Fail / Not applicable].....
Call Completion on Busy Services [Pass / Fail / Not applicable].....
Call Transfer Services [Pass / Fail / Not applicable].....
Operator Determined Barring Services [Pass / Fail / Not applicable].....
Unstructured Supplementary Service Data [Pass / Fail / Not applicable].....
Other comments.....

Toll Ticket file is being forwarded from .....PLMN to .....PLMN via TADIG procedures. (Delete if not applicable)

The tests were completed on.....(date).

The testing team in PLMN.....
were:.....

The testing team in PLMN.....
were:.....

Signed.....
Date.....

of PLMN.....

Signed.....
Date.....

of PLMN.....

End of Appendix D