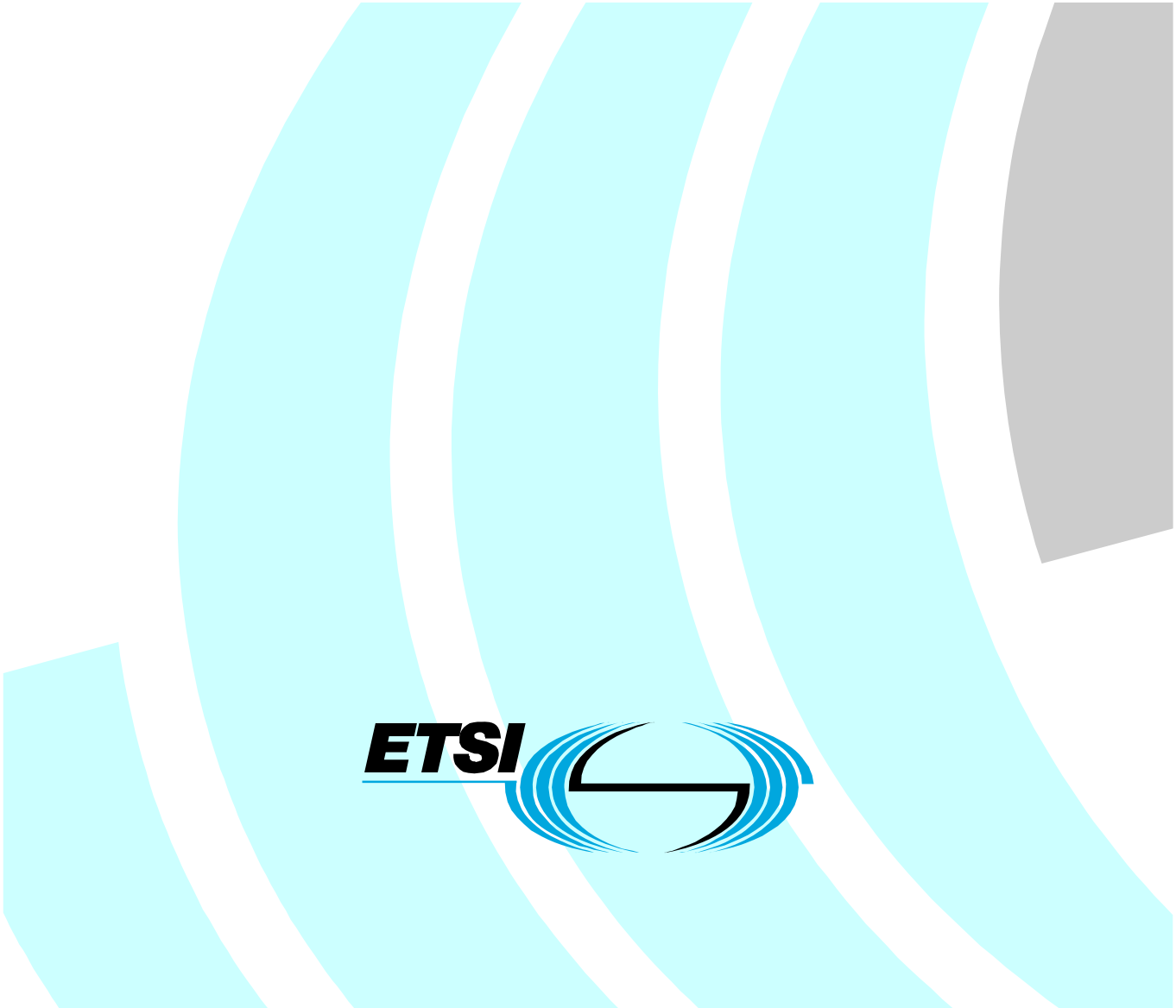
ETSI TS 186 011-1 V2.3.1 (2010-04)

Technical Specification

Technical Committee for IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; Part 1: Test purposes for IMS NNI Interoperability



Reference
RTS/INT-00020-1

Keywords
IMS, interworking, NNI, testing

ETSI

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
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://webapp.etsi.org/IPR/home.asp).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Specification (TS) has been produced by IMS Network Testing (INT).

The present document is part 1 of a multi-part deliverable covering the IMS NNI Interworking Test Specifications, as identified below:

Part 1: "Test purposes for IMS NNI Interoperability";

Part 2: "Test descriptions for IMS NNI Interoperability";

Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT)".

Introduction

The IP Multimedia core network Subsystem (IMS) is a key component in the ETSI NGN architecture. Each IMS consists of multiple functional entities and interfaces. The goal of this work is to provide the interoperability tests for standardized network to network interfaces (NNI) of the IMS core network that are based on SIP messages.

Test purposes defined in the present document have been developed based on the requirements stated in the 3GPP IMS Release 7 specification that NGN Release 2 has been derived from.

1 Scope

The present document specifies interoperability Test Purposes (TPs) for IMS NNI interworking based on the IP Multimedia Call Control Protocol based on Stage 3 Session Initiation Protocol (SIP) and Session Description Protocol (SDP) standard, TS 124 229 Release 7 [1] from which ETSI NGN Release 2 has been derived.

TPs are defined using the TPLan notation also described in ES 202 553 [4]. Test purposes have been written based on the test specification framework described in TS 102 351 [2] and the interoperability testing methodology defined in TS 102 237-1 [3], i.e. interoperability testing with conformance checking.

The scope of these test purposes is not to cover all requirements specified in TS 124 229 [1]. TPs have been only specified for requirements that are observable at the interface between two IMS core network implementations, i.e. IMS NNI. For the purpose of the present document a IMS core network as a whole - not its components - are considered to be under test.

NOTE: Requirements pertaining to a UE or an AS implementation or IMS core network requirements that can only be observed at the interface between UE and IMS CN are explicitly not within the scope of the present document. The latter requirements have been dealt with from a UE and conformance perspective in TS 134 229-3 [5].

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] ETSI TS 124 229: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 version 7.14.0 Release 7)".

[2] ETSI TS 102 351: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".

[3] ETSI TS 102 237-1: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 4; Interoperability test methods and approaches; Part 1: Generic approach to interoperability testing".

[4] ETSI ES 202 553: "Methods for Testing and Specification (MTS); TPLan: A notation for expressing Test Purposes".

[5] ETSI TS 134 229-3: "Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Part 3: Abstract test suite (ATS) (3GPP TS 34.229-3 version 7.2.0 Release 7)".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	3rd Generation Partnership Project
AS	(IMS) Application Server
CF	(Test) Configuration
CN	Core Network
CSCF	Call Session Control Function
DNS	Domain Name System
I-CSCF	Interogating CSCF
IMS	IP Multimedia Subsystem
IBCF	Interconnection Border Control Gateway
IOI	Inter Operator Identifier
IP	Internet Protocol
IUT	Implementation Under Test
NGN	Next Generation Network
NNI	Network-to-Network Interface
P-CSCF	Proxy CSCF
RC	Requirements Catalogue
S-CSCF	Serving CSCF
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TP	Test Purpose
TPLan	Test Purpose Notation
TSS	Test Suite Structure
UE	User Equipment
URI	Uniform Record Identifier

4 Test Suite Structure (TSS)

The Test Suite Structure is based on a Requirements Catalogue which was established prior to test purpose specification. This RC extracts all requirements from TS 124 229 [1] which are relavant to the scope of this work. The TSS is defined by the groups within the following TPLan specification of test purposes. The numbering is not contiguous so that new TPs can be added at a later date without the need to completely renumber the TSS groups.

NOTE: The requirements catalogue is at this point not accessible as an ETSI document. Requirement identifiers of the catalogue have been replaced in the present document with the location of the requirement in the base specification, i.e. base specification type, identifier, version, clause and paragraph.

EXAMPLE: TS 124 229 [1] (V7.14.0), clause 5.2.6.3 ¶66.

The test purposes have been divided into 5 major groups:

1) General Capabilities.

2) Registration procedures.

3) Dialog procedures.

4) Messaging procedures.

5) Supplementary services.

These groups have been further divided into subgroups according to IMS components as follow:

```
Group 1: IMST2 NNI IOP
Group 1.1: General Capabilities
Group 1.2: Registration procedures
Group 1.2.1: Registration at P-CSCF
Group 1.2.2: Registration at S-CSCF
Group 1.2.3: Registration at I-CSCF
Group 1.2.4: Registration at IBCF
Group 1.3: Dialog procedures
Group 1.3.1: Dialog at P-CSCF
Group 1.3.2: Dialog at S-CSCF
Group 1.3.3: Dialog at I-CSCF
Group 1.3.4: Dialog at IBCF
Group 1.4: Messaging procedures
Group 1.4.1: Messaging at P-CSCF
Group 1.4.2: Messaging at S-CSCF
Group 1.5: Supplementary service procedures
Group 1.5.1: Supplementary services at S-CSCF
```

5 Test Purposes (TP)

The test purposes have been written in the notation TPLan (ES 202 553 [4]) which has been developed at ETSI to express test purposes in a more formal manner. All TPLan TPs have been converted into a symbolic tabular presentation format which is shown in this section. TPs in the standardized textual TPLan syntax are collected in archive ts_18601101v020301p0.zip that is included in the electronic annex of the present document. The two presentation formats, i.e. textual and symbolic tabular, contain the same information and shall therefore be considered equivalent. In the case that there appears to be syntactical or semantic differences between the two then the files in the electronic annex take precedence over the following tables. Configurations that are referenced by test purposes are shown in annex B.

5.1 The tabular symbolic TPLan presentation format

Each table contains header fields and a description part. The header fields identify the TP, list the related clause reference the base specification that the TP was derived from, introduce the TP with a short summary, references the related test configuration and test case in the ATS.

The description part presents the TP using two sections: (a) initial conditions that have to be fulfilled for the test purpose body to be valid and (b) the test purpose body which is illustrated with one or more stimulus/response pairs. Both sections are further substructured with columns for affected entities from the test configurations, i.e. IUT, UE, UE2, IMS (test system component) and AS.

The condition section lists one or more conditions that have to be fulfilled in order for the test purpose body to apply. Each condition has a description and either "✓" or "✗" marks to indicate all the entities affected by this condition. "✓" marks indicates a positive condition, e.g. "A is registered in B", whereas "✗"marks indicate a negative condition, e.g. "B *not* configured for feature Z". If there is no mark in a column then the condition does not apply for that entity, e.g. entity A is not involved in the condition "B not configured for feature Z". It is assumed that all listed conditions have to be fulfilled in the order listed, i.e. the list reflects an "and" relation.

Table 1 shows an example condition section illustrating all of the above examples.

Table 1: Example TP condition section

Entities		Condition
A	B	
✓	✓	A registered in B
	×	B not configured for feature Z

The test purpose body section contains one or more steps identified with a number in the first column. Steps belonging IUT stimuli are shown with a green background whereas steps related to IUT responses are shown with a beige background. All listed steps are assumed to be carried out in increasing step number, i.e. they reflect an "and" relation. "or" relations at the level of entire messages are shown with lowercase letters following the step number identifying the different alternatives, e.g. "2a" versus "2b". Each step indicates the exchange of a message from a source entity (identified by the direction symbols "↳" or "↲"), e.g. entity A sends the message, to a destination entity (identified by the direction symbols "↱" or "↰"), e.g. entity B receives the message. The use of the "||" symbol in combination with the direction symbols, e.g. "||↲", indicates that a particular message shall either not be sent or received by an entity, e.g. entity B did not send the message.

Additional information about valid as well as invalid message content is presented in the "Message" column. First general information about message, e.g. its type, destination, attributes, etc, are shown in bold font. Below this information message headers or parameter content that must be present in that message are listed using "✓" symbols whereas headers or parameter content that must *not* be present are listed using the "×" symbols. The "➔" symbol indicates a valid message parameter value where as the "➔||"symbol indicates an invalid message parameter value. Any content, e.g. header or parameter, which is not explicitly mentioned in a message description of a TP is not restricted by that TP.

Finally, the interface identifier to which a message exchange pertains may be shown in the column labelled "IF".

Table 2 shows an example test purpose body section illustrating all of the above examples.

Table 2: Example TP body section

	A	B		
Step	Direction		Message	IF
1	↳	↱	**some request** ✓ this header ✓ this one parameter ➔ this value ✓ this other parameter ➔|| that value × that parameter × that header	Xx
2a	↰	↲	**failure response**	Xx
2b	↰||	||↲	**no message**	Xx

5.2 General Capabilities

Test Purpose						
Identifier:	**TP_IMS_4002_01**					
Summary:	IMS CN components shall support SIP messages > 1 300 bytes					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 4.2A ¶1			**Config Ref:**	CF_INT_CALL	
	Entities				Condition	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	Direction				Message	IF
1	↳	↱			**MESSAGE** addressed to UE B ✓ a Message Body greater than 1300 bytes	
2		↳	↱		**MESSAGE** ✓ the Message Body greater than 1300 bytes	

5.3 Registration Procedures

5.3.1 Registration at P-CSCF

Test Purpose					
Identifier:	**TP_IMS_5005_01**				
Summary:	The P-CSCF shall support the Path header				
IUT Role:	IMS A				
References:	TS 124.229 (V7.14.0) [1], clause 5.2.1 ¶2		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
		✓	✓	IMS B has challenged with a 401 response the REGISTER request of UE B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇦		⇦	**protected REGISTER** addressed to IMS B ✓ a Path header	
2	⇨	⇨		**REGISTER** ✓ a Path header	

Test Purpose					
Identifier:	**TP_IMS_5011_01**				
Summary:	The P-CSCF shall forward REGISTER requests received from the UE to the entry point in the home network				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.2.2 ¶2		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	×			IMS A not configured for topology hiding	
		✓	✓	user of UE B existing in IMS B	
	×		×	UE B has not established a security association with IUT	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇦		⇦	**unprotected REGISTER** ✓ a Security-Client header	
2	⇨	⇨		**REGISTER** ✓ a Path header ✓ P-CSCF SIP URI of IMS A ✓ a Require header ✓ a path option tag ✓ a P-Charging-Vector header ✓ an icid parameter ✓ an orig-ioi parameter ➔ IMS A × a term-ioi parameter ✓ a Authorization header ✓ an integrity-protected parameter ➔ no × a Security-Verify header × a Security-Client header ✓ a P-Visited-Network-ID header ➔ the visited network at the home network	

Test Purpose					
Identifier:	**TP_IMS_5011_02**				
Summary:	The P-CSCF shall forward REGISTER requests received from the UE to the entry point in the home network				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.2.2 ¶2		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	×			IMS A not configured for topology hiding	
		✓	✓	user of UE B existing in IMS B	
	✓		✓	UE B has established a security association with IUT	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	→		←	**protected REGISTER** ✓ a Security-Client header	
2	←	→		**REGISTER** ✓ a Path header ✓ P-CSCF SIP URI of IMS A ✓ a Require header ✓ a path option tag ✓ a P-Charging-Vector header ✓ an icid parameter ✓ an orig-ioi parameter ➔ IMS A × a term-ioi parameter ✓ a Authorization header ✓ an integrity-protected parameter ➔ yes × a Security-Verify header × a Security-Client header ✓ a P-Visited-Network-ID header ➔ the visited network at the home network	

Test Purpose					
Identifier:	**TP_IMS_5203_01**				
Summary:	The P-CSCF have received a REGISTER request from the UE and modified a number of headers and forwarded the request to an entry point with no response				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.2.2 ¶26 (item 9 in 1st numbered list)		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓		✓	UE B having sent an initial REGISTER to IMS A	
	✓	✓		IMS A configured with multiple entry points for IMS B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	→‖	‖→		**no response**	
2	←	→		**REGISTER** addressed to another entry point	

Test Purpose					
Identifier:	**TP_IMS_5203_02**				
Summary:	The P-CSCF have received a REGISTER request from the UE and modified a number of headers and forwarded the request to an entry point with 3xx				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.2.2 ¶26 (item 9 in 1st numbered list)		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓		✓	UE B having sent an initial REGISTER to IMS A	
	✓	✓		IMS A configured with multiple entry points for IMS B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇦	⇦		**3xx response**	
2	⇨	⇨		**REGISTER** addressed to another entry point	

Test Purpose					
Identifier:	**TP_IMS_5203_03**				
Summary:	The P-CSCF have received a REGISTER request from the UE and modified a number of headers and forwarded the request to an entry point with 480				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.2.2 ¶26 (item 9 in 1st numbered list)		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓		✓	UE B having sent an initial REGISTER to IMS A	
	✓	✓		IMS A configured with multiple entry points for IMS B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇦	⇦		**480 response**	
2	⇨	⇨		**REGISTER** addressed to another entry point	

Test Purpose					
Identifier:	**TP_IMS_5044_01**				
Summary:	The P-CSCF have received a REGISTER request from the UE and modified a number of headers and forwarded the request to an entry point				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.2.3 ¶1		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓		✓	UE B having sent a protected REGISTER to IMS A	
	x			IMS A not configured for topology hiding	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇦	⇦		**200 response**	
2	⇨	⇨		**SUBSCRIBE** ✓ a Request URI ✓ "the resource to which the P-CSCF wants to subscribe to" and ✓ a From header ✓ P-CSCF_SIP_URI of IMS_A and ✓ a To_header ✓ the default_public_user_identity of UE_B and ✓ an Event_header ✓ the reg event package and ✓ an Expires_header ➔ *"a value greater than the one in the Expires_header of the 200_response" and* ✓ a P-Asserted-Identity_header ✓ the P-CSCF_SIP_URI of IMS_A and ✓ a P-Charging-Vector header ✓ an icid parameter	

5.3.2 Registration at S-CSCF

Test Purpose					
Identifier:	**TP_IMS_5088_01**				
Summary:	S-CSCF shall deregister unexpired registration upon receipt of a new REGISTER with new contact information				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.4.1.2.1 ¶1		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓	✓	✓	UE B registered in IMS B via IMS A	
	✓	✓		IMS A within the trust domain of IMS B	
		×	×	UE B not de-registered in IMS B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1		→	←	**initial REGISTER** ✓ an Authorization header ✓ an integrity-protected parameter ➔ no	
2	←	←		**NOTIFY** ✓ a Request URI ➔ the P-CSCF SIP URI of IMS A ✓ an Event header ➔ the reg event package ✓ a Route header ➔ the original Route header from SUBSCRIBE ✓ a Message Body ✓ for each registered public identity of UE B a registration element ✓ an aor attribute ➔ registered public identity of UE B ✓ a state attribute ➔ terminated ✓ a contact subelement ✓ an event attribute ➔ deactivated **or** rejected ✓ a state attribute ➔ terminated ✓ a URI subelement ➔ the contact address of UE B	

Test Purpose					
Identifier:	**TP_IMS_5089_01**				
Summary:	S-CSCF shall return 401 (Unauthorized) upon receipt of a REGISTER from an UE not previously registered				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.4.1.2.1 ¶9		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
		✓	✓	user of UE B existing in IMS B	
		×	×	UE B not registered in IMS B	
	✓		✓	UE B visiting IMS A	
	✓	✓		IMS A within the trust domain of IMS B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1				**initial REGISTER** ✓ an Authorization header ✓ an integrity-protected parameter ➔ no	
2				**401 response** ✓ an WWW-Authenticate header ✓ a realm parameter ➔ the operator identifier of IMS B ✓ a nonce parameter ✓ a RAND parameter ✓ an AUTN parameter) ✓ an algorithm parameter ➔ AKAv1-MD5 ✓ an ik parameter ✓ a ck parameter	

Test Purpose					
Identifier:	**TP_IMS_5092_01**				
Summary:	200 OK on REGISTER from UE to the S-CSCF				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.4.1.2.2 ¶1		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
		✓	✓	user of UE B existing in IMS B	
	✓		✓	UE B visiting IMS A	
		×	×	UE B not registered in IMS B	
		✓		IMS B has challenged with a 401 response the REGISTER request	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1				**protected REGISTER** ✓ an Authorization header ✓ an integrity-protected parameter ➔ yes	
2				**200 response** ✓ the same Path header as in the protected REGISTER ✓ a P-Associated-URI header ✓ all registered public identities its associated set of implicitly registered public user identities ➔ first the default public user identity no barred public user identities ✓ a Service-Route header ➔ the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header ✓ a term-ioi parameter ➔ operator identifier of IMS B ✓ a Contact header ➔ all contact addresses for the default public user identity of UE B	

Test Purpose					
Identifier:	**TP_IMS_5096_01**				
Summary:	The network shall handle incoming SUBSCRIBE correctly				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.4.2.1.1 ¶1		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
		✓	✓	UE B registered in IMS B	
	✓		✓	UE B visiting IMS A	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1				**SUBSCRIBE** ✓ an Event header ➔ the reg event package	
2				**2xx response** ✓ an Expires header ➔ the same **or** lower expiry time than specified in the initial SUBSCRIBE	

Test Purpose					
Identifier:	**TP_IMS_5093_01**				
Summary:	S-CSCF shall deregister in network-initiated de-registration				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.4.1.5 ¶6		**Config Ref:**	CF_ROAM_REG	

	Entities			Condition	
	IMS A	**IMS B**	**UE B**		
	✓	✓	✓	UE B registered in IMS B via IMS A	
	✓	✓		IMS A within the trust domain of IMS B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1				**network initiated deregistration event**	
2				**NOTIFY** ✓ a Request URI ➔ UE_B ✓ an Event header ➔ the reg event package ✓ a Route header ➔ the original Route header from SUBSCRIBE ✓ a Message Body ✓ for each registered public identity of UE B a registration element ✓ an aor attribute ➔ registered public identity of UE B ✓ a state attribute ➔ terminated ✓ a contact subelement ✓ an event attribute ➔ deactivated **or** rejected ✓ a state attribute ➔ terminated ✓ a URI subelement ➔ the contact address of UE B	
3				**NOTIFY** ✓ a Request URI ➔ UE_A ✓ an Event header ➔ the reg event package ✓ a Route header ➔ the original Route header from SUBSCRIBE ✓ a Message Body ✓ for each registered public identity of UE A a registration element ✓ an aor attribute ➔ registered public identity of UE A ✓ a state attribute ➔ terminated ✓ a contact subelement ✓ an event attribute ➔ deactivated **or** rejected ✓ a state attribute ➔ terminated ✓ a URI subelement ➔ the contact address of UE A	

Test Purpose					
Identifier:	**TP_IMS_5094_01**				
Summary:	S-CSCF shall register in network-initiated re-authentication				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.4.1.6 ¶2		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓	✓	✓	UE B registered in IMS B via IMS A	
	✓	✓		IMS A within the trust domain of IMS B	
		✓		IMS B receives an event to reauthenticate UE_B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1				**network initiated reauthentication event**	
2				**NOTIFY** ✓ a Request URI ➔ UE_B ✓ an Event header ➔ the reg event package ✓ a Route header ➔ the original Route header from SUBSCRIBE ✓ a Message Body ✓ for each registered public identity of UE B a registration element ✓ an aor attribute ➔ registered public identity of UE B ✓ a state attribute ➔ active ✓ a contact subelement ✓ an event attribute ➔ shortened ✓ a state attribute ➔active ✓ a URI subelement ➔ the contact address of UE B	
3				**NOTIFY** ✓ a Request URI ➔ the P-CSCF_SIP_URI of IMS_A ✓ an Event header ➔ the reg event package ✓ a Route header ➔ the original Route header from SUBSCRIBE ✓ a Message Body ✓ for each registered public identity of UE A a registration element ✓ an aor attribute ➔ registered public identity of UE B ✓ a state attribute ➔ active ✓ a contact subelement ✓ an event attribute ➔ shortened ✓ a state attribute ➔ active ✓ a URI subelement ➔ the contact address of UE B	

5.3.3 Registration at I-CSCF

Interoperability Test Purpose					
Identifier:	**TP_IMS_5129_01**				
Summary:	If a request is received from a non-trusted domain, a 403 (Forbidden) response shall be returned by I-CSCF				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.3.1.2 ¶1		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
		✓	✓	user of UE B existing in IMS B	
	×	×		IMS A not within the trust domain of IMS B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇘	⇗		**valid initial REGISTER**	
2	⇖	⇙		**403 response**	

5.3.4 Registration at IBCF

Interoperability Test Purpose					
Identifier:	**TP_IMS_5134_01**				
Summary:	If a request includes a Path header the IBCF shall add the routeable SIP URI of an IBCF to the top of the Path header				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.10.4.1 ¶5		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓			IMS A configured for topology hiding	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇖		⇙	**REGISTER**	
2	⇘	⇗		**REGISTER** ✓ an additional topmost Path header ➔ the IBCF SIP URI of IMS A	

Interoperability Test Purpose					
Identifier:	**TP_IMS_5401_01**				
Summary:	IBCF shall, if topology hiding is required, apply the encryption for the Path header				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.1 ¶1		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓			IMS A configured for topology hiding	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇖		⇙	**REGISTER** ✓ Path header	
2	⇘	⇗		**REGISTER** ✓ a Path header ✓ encrypted consecutive header entries ✓ tokenized-by parameter	

Interoperability Test Purpose				
Identifier:	**TP_IMS_5402_01**			
Summary:	IBCF shall select a new entry point and forward the original REGISTER request on no response			
IUT Role:	IMS A			
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.1 ¶1 (item 3 in 1st bulleted list)		**Config Ref:**	CF_ROAM_REG
	Entities		**Condition**	
	IMS A	**IMS B**		
	✓		IMS A configured for topology hiding	
	✓	✓	IMS A configured with multiple entry points in IMS B	
	✓	✓	IMS A having sent an initial REGISTER to IMS B	
	IMS A	**IMS B**		
Step	**Direction**		**Message**	**IF**
1			**no response**	
2			**original REGISTER** addressed to another entry point	

Interoperability Test Purpose				
Identifier:	**TP_IMS_5402_02**			
Summary:	IBCF shall select a new entry point and forward the original REGISTER request on 3xx response			
IUT Role:	IMS A			
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.1 ¶1 (item 3 in 1st bulleted list)		**Config Ref:**	CF_ROAM_REG
	Entities		**Condition**	
	IMS A	**IMS B**		
	✓		IMS A configured for topology hiding	
	✓	✓	IMS A configured with multiple entry points for IMS B	
	✓	✓	IMS A having sent an initial REGISTER to IMS B	
	IMS A	**IMS B**		
Step	**Direction**		**Message**	**IF**
1			**3xx response**	
2			**original REGISTER** addressed to another entry point	

Interoperability Test Purpose				
Identifier:	**TP_IMS_5402_03**			
Summary:	IBCF shall select a new entry point and forward the original REGISTER request on 480 response.			
IUT Role:	IMS A			
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.1 ¶1 (item 3 in 1st bulleted list)		**Config Ref:**	CF_ROAM_REG
	Entities		**Condition**	
	IMS A	**IMS B**		
	✓		IMS A configured for topology hiding	
	✓	✓	IMS A configured with multiple entry points for IMS B	
	✓	✓	IMS A having sent an initial REGISTER to IMS B	
	IMS A	**IMS B**		
Step	**Direction**		**Message**	**IF**
1			**480 response**	
2			**original REGISTER** addressed to another entry point	

Interoperability Test Purpose					
Identifier:	**TP_IMS_5405_01**				
Summary:	The IBCF shall perform encryption for topology hiding before request is sent				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.2 ¶1		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓			IMS A configured for topology hiding	
	✓	✓	✓	UE_B has_received_200OK_on_a_protected_REGISTER from IMS_B	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇦		⇦	**SUBSCRIBE** addressed to IMS B	
2	⇨	⇨		**SUBSCRIBE** ✓ a Via header ✓ encrypted consecutive header entries ✓ tokenized-by parameter and ✓ a Record-route header ✓ encrypted consecutive header entries ✓ tokenized-by parameter and ✓ a Route header ✓ encrypted consecutive header entries ✓ tokenized-by parameter and ✘ a P-Charging-vector header and ✘ a P-Charging-Function-Addresses header	

Interoperability Test Purpose					
Identifier:	**TP_IMS_5411_01**				
Summary:	If a request is received from a non-trusted domain, a 403 (Forbidden) response shall be returned by IBCF				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.10.3.1 ¶1 (item1 in 1st numbered list)		**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**	
	IMS A	**IMS B**			
		✓		IMS B configured for topology hiding	
	✘	✘		IMS A not within the trust domain of IMS B	
	IMS A	**IMS B**			
Step	**Direction**			**Message**	**IF**
1	⇨	⇨		**valid REGISTER**	
2	⇦	⇦		**403 response**	

5.4 Dialog Procedures

5.4.1 Dialog at P-CSCF

Test Purpose						
Identifier:	**TP_IMS_5046_01**					
Summary:	When the P-CSCF receives an initial INVITE request for a dialog from a UE for which a Service-Route header list exists without topology hiding					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.3 ¶5 (1st numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		×			IMS A not configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇦		⇦	**initial INVITE**	
2		⇩	⇨		**INVITE** ✓ a topmost Route header ➔|| the P-CSCF SIP URI of IMS A ✓ a Route header ✓ the list of Service Route header URIs from the registration ✓ an additional Via header ✓ the P-CSCF via port number ✓ the P-CSCF-FQDN address **or** the P-CSCF-IP address of the IMS A ✓ an additional topmost Record-Route header ✓ the P-CSCF port number where it awaits subsequent requests from UE A ✓ the P-CSCF-FQDN address **or** the P-CSCF-IP address of the IMS A × P-Preferred-Identity header ✓ a P-Asserted-Identity header ✓ an address of UE B ✓ a P-Charging-Vector header ✓ an icid parameter	

Test Purpose						
Identifier:	**TP_IMS_5046_02**					
Summary:	When the P-CSCF receives an initial INVITE request for a dialog from a UE for which a Service-Route header list exists with topology hiding					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.3 ¶5 (1st numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇦		⇦	**initial INVITE**	
2		⇨	⇨		**INVITE** ✓ a topmost Route header ➔ the IBCF SIP URI of IMS A ➔|| the P-CSCF SIP URI of IMS A ✓ a Route header ✓ the list of Service Route header URIs from the registration ✓ an additional Via header ✓ the P-CSCF via port number ✓ the P-CSCF-FQDN address **or** the P-CSCF-IP address of the IMS A ✓ an additional topmost Record-Route header ✓ the P-CSCF port number where it awaits subsequent requests from UE A ✓ the P-CSCF-FQDN address **or** the P-CSCF-IP address of the IMS A ✘ P-Preferred-Identity header ✓ a P-Asserted-Identity header ✓ an address of UE A ✓ a P-Charging-Vector header ✓ an icid parameter	

Test Purpose						
Identifier:	**TP_IMS_5048_01**					
Summary:	P-CSCF forwards a target refresh request from the UE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.3 ¶32 (3rd numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has initiated a dialog with UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇦		⇦	**subsequent INVITE**	
2		⇨	⇨		**INVITE** ✓ a topmost Route header ➔|| the P-CSCF SIP URI of IMS A ✓ an additional topmost Record-Route header ✓ the P-CSCF port number where it awaits subsequent requests from UE A ✓ the P-CSCF-FQDN address **or** the P-CSCF-IP address of the IMS A ✓ an additional Via header ✓ the P-CSCF via port number ✓ the P-CSCF-FQDN address **or** the P-CSCF-IP address of the IMS A	

Test Purpose						
Identifier:	**TP_IMS_5052_01**					
Summary:	The P-CSCF modifies a request, other than a target refresh request, from the UE subsequent to a successful initial request for a dialog					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.3 ¶66 (7th numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has initiated a dialog with UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇦		⇦	**BYE**	
2		⇨	⇨		**BYE** ✗ a Route header ✓ the P-CSCF SIP URI of IMS A ✓ the same Record-Route header as in the previous **ACK**	

Test Purpose						
Identifier:	**TP_IMS_5053_01**					
Summary:	P-CSCF receives from the UE a request for an unknown method without topology hiding					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.3 ¶77 (8th numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		✗			IMS A not configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	⇨	⇨			**Unknown Method** addressed to UE B	
2		⇨	⇨		**Unknown Method** ✓ a Route header ➔ the list of Service Route header URIs from the registration ✗ a P-Preferred-Identity header ✓ a P-Asserted-Identity header ✓ an address of UE A	

Test Purpose						
Identifier:	**TP_IMS_5053_02**					
Summary:	P-CSCF receives from the UE a request for an unknown method with topology hiding					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.3 ¶77 (8th numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**Unknown Method** addressed to UE B	
2		↘	↗		**Unknown Method** ✓ a Route header ➔ the list of Service Route header URIs from the registration ✗ a P-Preferred-Identity header ✓ a P-Asserted-Identity header ✓ an address of UE A	

Test Purpose						
Identifier:	**TP_IMS_5055_01**					
Summary:	The P-CSCF receives a 180 response to an initial request for a dialog from the UE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.4 ¶17 (2nd numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received an initial request for a dialog from UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**180 response**	
2		↘	↗		**180 response** ✓ a Record-Route header ➔ the P-CSCF SIP URI and port number of IMS A where it expects subsequent requests ✗ a comp parameter ✗ a P-Preferred-Identity header ✓ a P-Asserted-Identity header ✓ the public identity sent in P-Called Party-ID header sent in the initial request	

Test Purpose						
Identifier:	**TP_IMS_5055_02**					
Summary:	The P-CSCF receives a 2xx response to an initial request for a dialog from the UE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.4 ¶17 (2nd numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received an initial request for a dialog from UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↳	↱			**200 response**	
2		↳	↱		**200 response** ✓ a Record-Route header ➔ the P-CSCF SIP URI and port number of IMS A where it expects subsequent requests ✗ a comp parameter ✗ a P-Preferred-Identity header ✓ a P-Asserted-Identity header ✓ the public identity sent in P-Called Party-ID header sent in the initial request	

Test Purpose						
Identifier:	**TP_IMS_5067_01**					
Summary:	The P-CSCF shall include the access-network-charging-info parameter in the P-Charging-Vector header in the first request originated by the UE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.7.2 ¶4			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		↰		↲	**initial INVITE**	
2		↳	↱		**INVITE** ✓ a P-Charging-Vector header ✓ a access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5070_01**					
Summary:	The P-CSCF shall respond with a 100 (Trying) provisional response on initial INVITE in terminating network					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.7.3 ¶3			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		↰		↲	**initial INVITE**	
2		↳	↱		**100 response**	

Test Purpose							
Identifier:	**TP_IMS_5072_01**						
Summary:	P-CSCF sends CANCEL in case its UE goes down during dialog initiation						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.2.8.1.1 ¶1			**Config Ref:**	CF_ROAM_CALL		
	Entities					**Condition**	
	UE A	**NWK**	**IMS A**	**IMS B**	**UE B**		
	✓		✓			UE A registered in IMS A	
				✓	✓	UE B registered in IMS B	
	✓				✓	UE B has received 180 on initial request for dialog from UE A	
	UE A	**NWK**	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1						**an indication** that UE B is no longer available	
2						**CANCEL** ✓ a Reason header ✓ a status code parameter ➔ 503 Service Unavailable	
3						**503 response**	

Test Purpose							
Identifier:	**TP_IMS_5073_01**						
Summary:	P-CSCF sends BYE in case its calling UE goes down in ongoing dialog						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.2.8.1.2 ¶1			**Config Ref:**	CF_INT_CALL		
	Entities					**Condition**	
	UE A	**IMS A**	**NWK**	**IMS B**	**UE B**		
	✓	✓				UE A registered inIMS A	
				✓	✓	UE B registered in IMS B	
	✓				✓	UE B has initiated a dialog with UE A	
	UE A	**IMS A**	**NWK**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1						**an indication** that UE B is no longer available	
2						**BYE** ✓ Request URI ➔ Contact header value of UE A ✓ To header ➔ initial 200 OK To value from UE A ✓ From header ➔ initial INVITE From value from UE B ✓ Call-ID header ➔ initial INVITE Call Id value from UE B ✓ CSeq header ✓ an incremented Sequence Number ✓ Route header ➔ dialog specific routing information for UE A ✓ Reason header ➔ 503 Service Unavailable ✓ further headers based on local policy or call release reason	

Test Purpose							
Identifier:	**TP_IMS_5074_01**						
Summary:	P-CSCF sends BYE in case its called UE goes down in ongoing dialog						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.2.8.1.2 ¶1			**Config Ref:**	CF_INT_CALL		
	Entities					**Condition**	
	UE A	**IMS A**	**NWK**	**IMS A**	**UE B**		
	✓	✓				UE A registered inIMS A	
				✓	✓	UE B registered in IMS A	
	✓				✓	UE A has initiated a dialog with UE B	
	UE A	**IMS A**	**NWK**	**IMS A**	**UE B**		
Step	**Direction**					**Message**	**IF**
1			↳	↱		**an indication** that UE B is no longer available	
2		↰		↱		**BYE** ✓ Request URI ➔ Contact header value of UE A ✓ To header ➔ initial INVITE To value from UE A ✓ From header ➔ initial 200 OK From value from UE B ✓ Call-ID header ➔ initial INVITE Call Id value from UE A ✓ CSeq header ✓ an incremented Sequence Number ✓ Route header ➔ dialog specific routing information for UE A ✓ Reason header ➔ 503 Service Unavailable ✓ further headers based on local policy or call release reason	

Test Purpose							
Identifier:	**TP_IMS_5080_01**						
Summary:	The P-CSCF shall include the updated access-network-charging-info parameter from P-Charging-Vector header when sending subsequent INVITE to the S-CSCF.						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.2.9.1 ¶2			**Config Ref:**	CF_ROAM_CALL		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**			
	✓	✓				UE A registered in IMS A	
			✓	✓		UE B registered in IMS B	
	✓			✓		UE B has initiated a dialog with UE A	
	UE A	**IMS A**	**IMS B**	**UE B**			
Step	**Direction**					**Message**	**IF**
1		↰		↱		**subsequent INVITE**	
2		↳	↱			**INVITE** ✓ a P-Charging-Vector header ✓ an updated access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5080_02**					
Summary:	The P-CSCF shall include the updated access-network-charging-info parameter from P-Charging-Vector header when sending the subsequent UPDATE to the S-CSCF					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.9.1 ¶2			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has initiated a dialog with with UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇦		⇦	**subsequent UPDATE**	
2		⇨	⇨		**UPDATE** ✓ a P-Charging-Vector header ✓ an updated access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5081_01**					
Summary:	P-CSCF 100 response to a re-INVITE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.9.2 ¶1			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with with UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇦	⇨		**subsequent INVITE** addressed to UE B	
2		⇨	⇨		**100 response**	

Test Purpose						
Identifier:	**TP_IMS_5082_01**					
Summary:	P-CSCF sends 200 response to a target refresh request with P-Charging-Vector					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.9.2 ¶2			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
		✓		✓	IMS B has received a target refresh request in a dialog from IMS A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇦		⇦	**200 response**	
2		⇨	⇨		**200 response** ✓ a P-Charging-Vector header ✓ an updated access-network-charging-info parameter	

5.4.2 Dialog at S-CSCF

Test Purpose						
Identifier:	**TP_IMS_5097_01**					
Summary:	S-CSCF must inserts orig-ioi parameter, remove access-network-charging-info parameter and P-Access-Network-Info header before sending initial INVITE or a initial request over NNI					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1			**Config Ref:**	CF_INT_CALL CF_ROAM_AS	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		×			IMS A not configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↳	↱			**initial INVITE** addressed to UE B (also valid for SUBSCRIBE)	
2		↳	↱		**initial INVITE** × a Route header ➔ the S-CSCF SIP URI of IMS A ✓ a P-Charging-Vector header ✓ an icid parameter ✓ an orig-ioi parameter ➔ IMS A × an access-network-charging-info parameter × a term-ioi parameter ✓ a Record-Route header ➔ the originating S-CSCF SIP URI × a P-Access-Network-Info header	

Test Purpose						
Identifier:	**TP_IMS_5097_02**					
Summary:	S-CSCF inserts a second P-Asserted-Identity header indicating a registered tel URI or sip URI whichever is not present in initial INVITE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓				UE A registered public identities containing a Tel URI and a SIP URI	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↳	↱			**initial INVITE** addressed to UE B	
2		↳	↱		**initial INVITE** ✓ a P-Asserted-Identity header ➔ the SIP URI of UE A ✓ a P-Asserted-Identity header ➔ the Tel URI of UE A	

Test Purpose							
Identifier:	**TP_IMS_5097_04**						
Summary:	S-CSCF uses ENUM/DNS to translate Tel URIs to SIP URIs in initial INVITE requests						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1			**Config Ref:**		CF_INT_CALL	
	Entities					**Condition**	
	UE A	**IMS A**	**DNS B**	**IMS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
				✓	✓	UE B registered in IMS B	
			✓		✓	DNS B configured with an ENUM entry for Tel URI E.164 Number of UE B	
	UE A	**IMS A**	**DNS B**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1						**initial INVITE** addressed to UE B ✓ a Request URI ➔ a Tel URI	
2						**DNS Query** ✓ the Tel URI E.164 Number	
3						**DNS Response** ✓ NAPTR Resource Record ➔ the SIP URI of UE B	
4						**initial INVITE** ✓ a Request URI ➔ a SIP URI of UE B ✓ a P-Charging-Vector header ✘ an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5106_01**						
Summary:	S-CSCF must handle subsequent INVITE prior to sending it over NNI						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶69 (4th numbered list)			**Config Ref:**		CF_INT_CALL	
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**			
	✓	✓				UE A registered in IMS A	
			✓	✓		UE B registered in IMS B	
	✓			✓		UE A has initiated a dialog with UE B	
	UE A	**IMS A**	**IMS B**	**UE B**			
Step	**Direction**					**Message**	**IF**
1						**subsequent INVITE** addressed to UE B	
2						**subsequent INVITE** ✓ a Record-Route header ➔ the S-CSCF SIP URI of IMS A ✓ Route header ➔|| the S-CSCF SIP URI of IMS A ✓ a P-Charging-Vector header ✘ an access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5106_02**					
Summary:	S-CSCF must handle UPDATE prior to sending it over NNI					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶69 (4th numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**UPDATE** addressed to UE B	
2		↘	↗		**UPDATE** ✓ a Record-Route header ✓ the S-CSCF SIP URI of IMS A × Route header ➔ the S-CSCF SIP URI of IMS A ✓ a P-Charging-Vector header × an access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5107_01**					
Summary:	S-CSCF removes its own SIP URI from the route header before sending BYE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶49			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**BYE** addressed to UE B	
2		↘	↗		**BYE** × Route header ➔ the S-CSCF SIP URI of IMS A	

Test Purpose						
Identifier:	**TP_IMS_5107_02**					
Summary:	S-CSCF removes its own SIP URI from the route header before sending ACK					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶49			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received 200OK on initial request for dialog UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**ACK** addressed to UE B	
2		↘	↗		**ACK** × Route header ➔ the S-CSCF SIP URI of IMS A	

Test Purpose						
Identifier:	**TP_IMS_5107_03**					
Summary:	S-CSCF removes its own SIP URI from the route header before sending CANCEL					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶69 (4th numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received 180 on initial request for dialog from UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**CANCEL** addressed to UE B	
2		↘	↗		**CANCEL** × Route header ➔ the S-CSCF SIP URI of IMS A	

Test Purpose						
Identifier:	**TP_IMS_5107_04**					
Summary:	S-CSCF removes its own SIP URI from the route header before sending REFER					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶49			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received 200OK on initial request for dialog to MRFC AS in IMS A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**REFER** addressed to UE B	
2		↘	↗		**REFER** × Route header ➔ the S-CSCF SIP URI of IMS A	

Test Purpose						
Identifier:	**TP_IMS_5108_05**					
Summary:	S-CSCF rejects barred users on initial INVITE					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶1			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
			✓	✓	UE B barred user in IMS B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		↘	↗		**initial INVITE** addressed to UE B ✓ a Request URI ➔ a barred user in IMS B	
2		↙	↖		**404 response**	

Test Purpose						
Identifier:	**TP_IMS_5115_01**					
Summary:	S-CSCF include term-ioi parameter and restores orig-ioi in 180 responses from UE to initial requests in terminating network					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (3rd numbered list)				**Config Ref:**	CF_INT_CALL
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has received an initial request for a dialog from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**180 response** addressed to UE A	
2		⇦	⇨		**180 response** ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A ✓ a term-ioi parameter ➔ operator identifier of IMS B	

Test Purpose						
Identifier:	**TP_IMS_5115_02**					
Summary:	S-CSCF include term-ioi parameter and restores orig-ioi in 2xx responses from UE to initial requests in terminating network					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (3rd numbered list)				**Config Ref:**	CF_INT_CALL
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has received 180 on initial request for dialog from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**2xx response** addressed to UE A	
2		⇦	⇨		**2xx response** ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A ✓ a term-ioi parameter ➔ operator identifier of IMS B	

Test Purpose						
Identifier:	**TP_IMS_5115_03**					
Summary:	S-CSCF inserts a second P-Asserted-Identity header in 1xx response indicating a registered tel URI or SIP URI whichever is not present					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (3rd numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B registered public identities containing a Tel URI and SIP URI	
	✓			✓	UE B has received an initial request for a dialog from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			🡐	🡒	**1xx response** addressed to UE A	
2		🡐	🡒		**1xx response** ✓ a P-Asserted-Identity header ➔ the SIP URI of UE B ✓ a P-Asserted-Identity header ➔ the Tel URI of UE B	

Test Purpose						
Identifier:	**TP_IMS_5115_04**					
Summary:	S-CSCF inserts a second P-Asserted-Identity header in 2xx response indicating a registered tel URI or SIP URI whichever is not present					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (3rd numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B registered public identities containing a Tel URI	
				✓	UE B default registered public identity is a SIP URI	
	✓			✓	UE B has received 180 on initial request for dialog from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			🡐	🡒	**2xx response** addressed to UE A	
2		🡐	🡒		**2xx response** ✓ a P-Asserted-Identity header ➔ the SIP URI of UE B ✓ a P-Asserted-Identity header ➔ the Tel URI of UE B	

Test Purpose						
Identifier:	**TP_IMS_5120_01**					
Summary:	S-CSCF must Remove its URI from the Route header and insert its SIP-URI in the Record Route header on a target refresh request					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (5th numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↳		↗		**subsequent INVITE** addressed to UE B	
2		↖	↙		**INVITE** ✓ a topmost Route header ➔|| the S-CSCF SIP URI of IMS B ✓ a Record-Route header ✓ the S-CSCF SIP URI	

Test Purpose						
Identifier:	**TP_IMS_5120_02**					
Summary:	S-CSCF must Remove its URI from the Route header and insert its SIP-URI in the Record Route header on a target refresh request					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (5th numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↳		↗		**UPDATE** addressed to UE B	
2		↖	↙		**UPDATE** ✓ a topmost Route header ➔|| the S-CSCF SIP URI of IMS B ✓ a Record-Route header ✓ the S-CSCF SIP URI	

Test Purpose						
Identifier:	**TP_IMS_5121_01**					
Summary:	S-CSCF remove access-network-charging-info parameter from 1xx response to subsequent or target refresh requests					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶75 (6th numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B has received a subsequent or target refresh request in a dialog	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇦	**1xx response** addressed to UE A	
2		⇦	⇦		**1xx response** ✓ a P-Charging-Vector header ✗ an access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5121_02**					
Summary:	S-CSCF remove access-network-charging-info parameter from 2xx response to subsequent or target refresh requests					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶75 (6th numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B has received a subsequent or target refresh request in a dialog	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇦	**2xx response** addressed to UE A	
2		⇦	⇦		**2xx response** ✓ a P-Charging-Vector header ✗ an access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5301_01**					
Summary:	S-CSCF shall prior to forwarding a subsequent request remove its own URI from the Route header and add it to the Record-Route header					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶79 (7th numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	⇨	⇨			**BYE**	
2		⇨	⇨		**BYE** ✓ Route header ➔‖ the S-CSCF SIP URI of IMS A ✓ a topmost Record-Route header ➔ the S-CSCF SIP URI of IMS A	

Test Purpose							
Identifier:	**TP_IMS_5139_01**						
Summary:	The S-CSCF receives a network internal indication to release an existing multimedia session including registration lifetime expiration of the last public user identity						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.5.1.2 ¶1			**Config Ref:**		CF_INT_CALL	
	Entities					**Condition**	
	UE A	**NWK**	**IMS A**	**IMS B**	**UE B**		
	✓		✓			UE A registered in IMS A	
				✓	✓	UE B registered in IMS B	
	✓				✓	UE A has initiated a dialog with UE B	
	UE A	**NWK**	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	⇗			**network internal indication** that the lifetime of the last public user identity has expired	
2			↳		⇗	**BYE** ✓ a Request URI ➔ Contact header value of UE B ✓ a To header ➔ the To header of the 200 response to initial ✓ a From header ➔ the From header of the initial ✓ a Call-ID header ➔ the Call-ID header of the initial ✓ a CSeq header ➔ CSeq header of the calling user incremented by one ✓ a Route header ➔ routeing information towards the called user as stored for the dialog ✓ a Reason header ✓ further headers, based on local policy or the requested session release reason	

5.4.3 Dialog at I-CSCF

Interoperability Test Purpose						
Identifier:	**TP_IMS_5131_01**					
Summary:	I-CSCF shall remove P-Charging-Function-Addresses header from 180 response to initial request					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.3.2.1 ¶52 (after note 8)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has received an initial request for a dialog from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			↰	⇙	**180 response** addressed to UE A	
2		↰	⇙		**180 response** ✗ a P-Charging-Function-Addresses header	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5131_02**					
Summary:	I-CSCF shall remove P-Charging-Function-Addresses header from 200 response to initial request					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.3.2.1 ¶52 (after note 8)			**Config Ref:**	CF_INT_CALL	
	Entities				Condition	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received 180 on initial request for dialog from UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**2xx response** addressed to UE A	
2		⇦	⇨		**2xx response** × a P-Charging-Function-Addresses header	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5132_01**					
Summary:	I-CSCF shall return an appropriate response to initial request to non-existent user					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.3.2.1 ¶44 (after 5th numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				Condition	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			×		IMS B not configured with local policy to attempt request routeing	
			×	×	UE B not registered in IMS B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇨	⇨		**initial INVITE** addressed to UE B ✓ a Request URI ➔ a non existing user in IMS B	
2a		⇦	⇨		**404 response**	
2b		⇦	⇨		**604 response**	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5133_01**					
Summary:	I-CSCF shall return unsuccessful response to initial request to non-registered user					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.3.2.1 ¶45 (before 6th numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				Condition	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			×	×	UE B not registered in IMS B	
			×	×	IMS B not configured with a terminating unregistered filter criterion for UE B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇨	⇨		**initial INVITE** addressed to UE B	
2		⇦	⇨		**4xx response**	

5.4.4 Dialog at IBCF

Interoperability Test Purpose					
Identifier:	**TP_IMS_5135_01**				
Summary:	If a request includes a Record-Route header the IBCF shall add its own routeable SIP URI to the top of the Record-Route header				
IUT Role:	IMS A				
References:	TS 124 229 (V7.14.0) [1], clause 5.10.4.1 ¶8 (after note 3)		**Config Ref:**	CF_INT_CALL	
	Entities			**Condition**	
	IMS A	**IMS B**	**UE B**		
	✓			IMS A configured for topology hiding	
	IMS A	**IMS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	⇦		⇦	**initial INVITE**	
2	⇨	⇨		**initial INVITE** ✓ an additional topmost Record-Route header ✓ the IBCF SIP URI of IMS A	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5137_01**					
Summary:	The IBCF shall perform encryption for topology hiding before an intial INVITE request is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.4.2 ¶1 (1st numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	⇨	⇨			**initial INVITE** addressed to UE B	
2		⇨	⇨		**initial INVITE** ✓ a Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Record-Route header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5137_02**					
Summary:	The IBCF shall perform encryption for topology hiding before 180 response is sent					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.4.2 ¶1		**Config Ref:**	CF_INT_CALL		
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has received an initial request for a dialog from UE A	
			✓		IMS B configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**180 response** addressed to UE A	
2		⇦	⇨		**180 response** ✓ Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ Record-Route header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5137_03**					
Summary:	The IBCF shall perform encryption for topology hiding before 200 response is sent					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.4.2 ¶1		**Config Ref:**	CF_INT_CALL		
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received 180 on initial request for dialog from UE B	
			✓		IMS B configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**200 response** addressed to UE A	
2		⇦	⇨		**200 response** ✓ a Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Record-Route header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5137_04**					
Summary:	The IBCF shall perform encryption for topology hiding before an intial REGISTER request is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.4.2 ¶1 (1st numbered list)			**Config Ref:**	CF_ROAM_REG	
	Entities			**Condition**		
	UE B	**IMS A**	**IMS B**			
		✓		IMS A configured for topology hiding		
	UE B	**IMS A**	**IMS B**			
Step	**Message**					**IF**
1	↘	↗		**unprotected REGISTER** addressed to IMS B		
2		↘	↗	**REGISTER** ✓ a Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Service-Route header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Path header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter		

Interoperability Test Purpose						
Identifier:	**TP_IMS_5404_01**					
Summary:	IBCF shall remove P-Charging-Function-Addresses header from initial INVITE request					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.2 ¶1 (1st numbered list)				**Config Ref:**	CF_INT_CALL
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**initial INVITE** addressed to UE B ✓ a P-Charging-Function-Addresses header	
2		↘	↗		**initial INVITE** ✗ a P-Charging-Function-Addresses header	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5408_01**					
Summary:	The IBCF shall perform encryption for topology hiding before ACK request is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.3 ¶1 (1st numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has received 200OK on initial request for dialog from UE B	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**ACK** addressed to UE B	
2		↘	↗		**ACK** ✓ a Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5408_02**					
Summary:	The IBCF shall perform encryption for topology hiding before CANCEL request is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.3 ¶1 (1st numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has received 180 on initial request for dialog from UE A	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**CANCEL** addressed to UE B	
2		↘	↗		**CANCEL** ✓ a Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Record-Route header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5408_03**					
Summary:	The IBCF shall perform encryption for topology hiding before BYErequest is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.3 ¶1 (1st numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**BYE** addressed to UE B	
2		↘	↗		**BYE** ✓ a Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Record-Route header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5408_04**					
Summary:	The IBCF shall perform encryption for topology hiding before subsequent INVITE request is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.2.3 ¶1 (1st numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE A has initiated a dialog with UE B	
		✓			IMS A configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↘	↗			**subsequent INVITE** addressed to UE B	
2		↘	↗		**subsequent INVITE** ✓ a Via header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Record-Route header ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

Interoperability Test Purpose						
Identifier:	**TP_IMS_5414_01**					
Summary:	When IBCF receives an initial INVITE request and it shall respond with a 100 (Trying) provisional response					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.10.3.2 ¶4 (1st numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
			✓		IMS B configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		→	→		**initial INVITE** addressed to UE B	
2		←	←		**100 response**	

5.5 Messaging Procedures

5.5.1 Messaging at P-CSCF

Test Purpose						
Identifier:	**TP_IMS_5050_01**					
Summary:	When the P-CSCF receives a MESSAGE request from a UE for which a Service-Route header list exists without topology hiding					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.2.6.3 ¶53 (5th numbered list)			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		×			IMS A not configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		←		←	**MESSAGE**	
2		→	→		**MESSAGE** ✓ a Route header ➔|| the P-CSCF SIP URI of IMS A ➔ the list of Service Route header URIs from registration × a P-Preferred-Identity header ✓ P-Asserted-Identity header ✓ an address of UE A ✓ the P-Charging-Vector header ✓ an icid parameter	

5.5.2 Messaging at S-CSCF

Test Purpose						
Identifier:	**TP_IMS_5097_05**					
Summary:	S-CSCF must inserts orig-ioi parameter, remove access-network-charging-info parameter before sending MESSAGE over NNI					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1		**Config Ref:**	CF_INT_CALL		
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
		×			IMS A not configured for topology hiding	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↳	↱			**MESSAGE** addressed to UE B	
2		↳	↱		**MESSAGE** × a Route header ➔ the S-CSCF SIP URI of IMS A ✓ a P-Charging-Vector header ✓ an icid parameter ✓ an orig-ioi parameter ➔ IMS A × an access-network-charging-info parameter × a term-ioi parameter	

Test Purpose						
Identifier:	**TP_IMS_5097_06**					
Summary:	S-CSCF inserts a second P-Asserted-Identity header indicating a tel or SIP URI whichever is not present for MESSAGE					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1		**Config Ref:**	CF_INT_CALL		
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓				UE A registered public identities containing a Tel URI and SIP URI	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1	↳	↱			**MESSAGE** addressed to UE B	
2		↳	↱		**MESSAGE** ✓ a P-Asserted-Identity header ➔ the SIP URI of UE A ✓ a P-Asserted-Identity header ➔ the Tel URI of UE A	

Test Purpose							
Identifier:	**TP_IMS_5097_08**						
Summary:	S-CSCF uses ENUM/DNS to translate Tel URIs to SIP URIs in MESSAGE requests						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1			**Config Ref:**		CF_INT_CALL	
	Entities					**Condition**	
	UE A	**IMS A**	**DNS A**	**IMS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
				✓	✓	UE B registered in IMS B	
			✓		✓	DNS B configured with an ENUM entry for Tel URI E.164 Number of UE B	
	UE A	**IMS A**	**DNS A**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1						**MESSAGE** addressed to UE B ✓ a Request URI ➔ a Tel URI	
2						**DNS Query** ✓ the Tel URI E.164 Number	
3						**DNS Response** ✓ NAPTR Resource Record ➔ the SIP URI of UE B	
4						**MESSAGE** addressed to UE B ✓ a Request URI ➔ a SIP URI of UE B ✓ a P-Charging-Vector header × an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5097_10**						
Summary:	MESSAGE handling by S-CSCF with matching filter criteria AS						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1				**Config Ref:**	CF_ROAM_AS	
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
		✓			✓	UE B visiting IMS A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
			✓	✓		AS B within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1						**MESSAGE** addressed to UE A	
2						**MESSAGE** ✓ a Route header ➔ the SIP URI of AS B ✓ a P-Charging-Function-Addresses header	

Test Purpose						
Identifier:	**TP_IMS_5108_02**					
Summary:	Standalone request; terminated at the served user					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶1			**Config Ref:**	CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇘	⇗		**MESSAGE** addressed to UE B ✓ a P-Charging-Vector header ✓ an icid parameter	
2		⇖	⇙		**MESSAGE** ✓ Route header ➔**||** the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header ✓ the same icid parameter ✗ ioi parameters ✓ a Record-Route header ✓ the S-CSCF SIP URI of IMS B	

Test Purpose						
Identifier:	**TP_IMS_5108_06**					
Summary:	S-CSCF rejects barred users on MESSAGE					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶1			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
			✓	✓	UE B barred user in IMS B	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		⇘	⇗		**MESSAGE** addressed to UE B ✓ a Request URI ➔ a barred user in IMS B	
2		⇖	⇙		**404 response**	

Test Purpose						
Identifier:	**TP_IMS_5117_01**					
Summary:	S-CSCF remove access-network-charging-info parameterfrom 1xx response to standalone transaction					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶75 (after note 10)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B has received a standalone request	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇖	⇙	**1xx response** addressed to UE A	
2		⇖	⇙		**1xx response** ✓ a P-Charging-Vector header ✗ an access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5117_02**					
Summary:	S-CSCF remove access-network-charging-info parameter from 2xx response to standalone transaction					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶75 (after note 10)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B has received a standalone request	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**2xx response** addressed to UE A	
2		⇦	⇨		**2xx response** ✓ a P-Charging-Vector header ✗ an access-network-charging-info parameter	

Test Purpose						
Identifier:	**TP_IMS_5117_05**					
Summary:	S-CSCF inserts a second P-Asserted-Identity header in 1xx response from UE for initial request indicating a registered SIP URI if not present					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶75 (after note 10)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B registered_public_identities containing a Tel_URI and a SIP_URI	
	✓			✓	UE B has received a standalone request from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**1xx response** addressed to UE A	
2		⇦	⇨		**1xx response** ✓ a P-Asserted-Identity header ➔ the tel URI of UE B ✓ a P-Asserted-Identity header ➔ a SIP URI of UE B	

Test Purpose						
Identifier:	**TP_IMS_5117_06**					
Summary:	S-CSCF inserts a second P-Asserted-Identity header in 2xx response from UE for initial request indicating a registered SIP URI if not present					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶75 (after note 10)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
				✓	UE B registered_public_identities containing a Tel_URI and a SIP_URI	
	✓			✓	UE B has received a standalone request from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**2xx response** addressed to UE A	
2		⇦	⇨		**2xx response** ✓ a P-Asserted-Identity header ➔ the tel URI of UE B ✓ a P-Asserted-Identity header ➔ the SIP URI of UE B	

Test Purpose						
Identifier:	**TP_IMS_5118_01**					
Summary:	S-CSCF include term-ioi parameter and restores orig-ioi in 200 responses to standalone requests					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶76 (4th numbered list)			**Config Ref:**	CF_INT_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
			✓	✓	UE B registered in IMS B	
	✓			✓	UE B has received a standalone request from UE A	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1			⇦	⇨	**200 response** addressed to UE A	
2		⇦	⇨		**200 response** ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A ✓ a term-ioi parameter ➔ operator identifier of IMS B	

5.6 Application Server Handling Procedures

5.6.1 Application Server Handling at S-CSCF

Test Purpose							
Identifier:	**TP_IMS_5097_09**						
Summary:	Initial request for a dialog handling by S-CSCF with matching filter criteria AS						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1			**Config Ref:**	CF_ROAM_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
		✓			✓	UE B visiting IMS A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
			✓	✓		AS B within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	⇗			**initial INVITE** addressed to UE A	
2			↳	⇗		**initial INVITE** ✓ a Route header ➔ the SIP URI of AS B ✓ a P-Charging-Function-Addresses header ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A × a term-ioi parameter	

Test Purpose							
Identifier:	**TP_IMS_5097_13**						
Summary:	Standalone request handling by S-CSCF with matching filter criteria AS						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶1			**Config Ref:**	CF_ROAM_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
		✓			✓	UE B visiting IMS A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
			✓	✓		AS B within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	⇗			**PUBLISH** sent by UE_B	
2			↳	⇗		**PUBLISH** ✓ a Route header ➔ the SIP URI of AS B ✓ a P-Charging-Function-Addresses header ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A × a term-ioi parameter	

Test Purpose							
Identifier:	**TP_IMS_5108_03**						
Summary:	Request for a initial dialog terminated at the served user						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶1			**Config Ref:**	CF_ROAM_AS CF_INT_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
		✓			✓	UE B registered in IMS A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		🡻	🡽			**initial** INVITE addressed to UE B	
2			🡻	🡽		**INVITE** ✓ a topmost Route header ➔ the SIP URI of AS B ✓ a Route header ➔ the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A × a term-ioi parameter	

Test Purpose							
Identifier:	**TP_IMS_5108_04**						
Summary:	Standalone request; terminated at the served user						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶1			**Config Ref:**	CF_ROAM_AS CF_INT_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
		✓			✓	UE B registered in IMS B	
			✓	✓		IMS B configured with filter criteria to contact AS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		🡻	🡽			**MESSAGE** addressed to UE B	
2			🡻	🡽		**MESSAGE** ✓ a topmost Route header ➔ the SIP URI of AS B ✓ a Route header ➔ the S-CSCF SIP URI of IMS B	

Test Purpose							
Identifier:	**TP_IMS_5108_06**						
Summary:	Request for a initial dialog terminated at the served user (SUBSCRIBE)						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶1			**Config Ref:**	CF_ROAM_AS CF_INT_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
		✓			✓	UE B registered in IMS A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	⇗			**SUBSCRIBE** addressed to UE B	
2			↳	⇗		**SUBSCRIBE** ✓ a topmost Route header ➔ the SIP URI of AS B ✓ a Route header ➔ the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A × a term-ioi parameter	

Test Purpose							
Identifier:	**TP_IMS_5109_01**						
Summary:	S-CSCF returns 408 or 5xx response to initial terminating INVITE when there is no response from AS and filter criterion indicates the value SESSION_TERMINATED						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶53 (after 1st numbered list)			**Config Ref:**	CF_INT_CALL CF_ROAM_CALL		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**			
	✓	✓				UE A registered in IMS A	
				×		UE B not registered	
			✓	✓		IMS B configured with a terminating unregistered filter criterion for UE B indicating SESSION TERMINATED on INVITE	
	UE A	**IMS A**	**IMS B**	**UE B**			
Step	**Direction**					**Message**	**IF**
1		↳	⇗			**initial INVITE** addressed to UE B	
2a		↰	↲			**408 response**	
2b		↰	↲			**5xx response**	

Test Purpose							
Identifier:	**TP_IMS_5110_01**						
Summary:	Forward 200 from AS on final response to an initial request for a dialog or a standalone request						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶56 (after 5th dashed list)			**Config Ref:**	CF_INT_AS CF_ROAM_AS		
	Entities					**Condition**	
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**		
	✓		✓			UE A registered in IMS A	
				✓	✓	UE B registered in IMS B	
		✓	✓			IMS A configured with filter criteria to contact AS A	
	✓				✓	UE B has received 180 on initial request for dialog from UE A	
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	⇗			**200 response** addressed to UE B	
2			↳	⇗		**200 response**	

Test Purpose						
Identifier:	**TP_IMS_5114_01**					
Summary:	S-CSCF should turn down initial dialog request when terminated at the not registered served user					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶59 (2nd numbered list)			**Config Ref:**	CF_INT_AS CF_ROAM_AS	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓		✓		UE A registered in IMS B	
				×	UE B not registered	
			×		IMS B not configured with filter criteria to contact any AS	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		↳	⇗		**initial INVITE** addressed to UE B	
2		⇖	↲		**4xx response**	

Test Purpose						
Identifier:	**TP_IMS_5114_02**					
Summary:	S-CSCF should turn down standalone request when terminated at the not registered served user					
IUT Role:	IMS B					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶59 (2nd numbered list)			**Config Ref:**	CF_INT_CALL CF_ROAM_CALL	
	Entities				**Condition**	
	UE A	**IMS A**	**IMS B**	**UE B**		
	✓	✓			UE A registered in IMS A	
				×	UE B not registered	
			×		IMS B not configured with filter criteria to contact any AS	
	UE A	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**				**Message**	**IF**
1		↳	⇗		**MESSAGE** addressed to UE B	
2		⇖	↲		**4xx response**	

Test Purpose							
Identifier:	**TP_IMS_5115_07**						
Summary:	S-CSCF include term-ioi parameter and restores orig-ioi in 1xx responses from AS to initial requests in terminating network						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (3rd numbered list)				**Config Ref:**	CF_ROAM_AS CF_INT_AS	
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
	✓			✓		AS B has received an initial request for a dialog from UE A	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1			⇖	↲		**1xx response** addressed to UE A	
2		⇖	↲			**1xx response** ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A ✓ a term-ioi parameter ➔ operator identifier of IMS B	

Test Purpose							
Identifier:	**TP_IMS_5115_08**						
Summary:	S-CSCF include term-ioi parameter and restores orig-ioi in 2xx responses from AS to initial requests in terminating network						
Clause:							
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶65 (3rd numbered list)			**Config Ref:**	CF_ROAM_AS CF_INT_AS		
IUT Role:	IMS B			**Test Case:**	**TC_IMS_5115_08**		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
	✓			✓		AS B has received an initial request for a dialog from UE A	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1			⇦	⇨		**2xx response** addressed to UE A	
2		⇦	⇨			**2xx response** ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A ✓ a term-ioi parameter ➔ operator identifier of IMS B	

Test Purpose							
Identifier:	**TP_IMS_5118_02**						
Summary:	S-CSCF include term-ioi parameter and restores orig-ioi in 200 responses from AS to standalone requests						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶76 (4th numbered list)			**Config Ref:**	CF_ROAM_AS CF_INT_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
	✓			✓		AS B has received a standalone request from UE A	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1			⇦	⇨		**200 response** addressed to UE A	
2		⇦	⇨			**200 response** ✓ a P-Charging-Vector header ✓ an orig-ioi parameter ➔ operator identifier of IMS A ✓ a term-ioi parameter ➔ operator identifier of IMS B	

Test Purpose							
Identifier:	**TP_IMS_5302_01**						
Summary:	The S-CSCF shall retain the the access-network-charging-info parameter in the P-Charging-Vector header a 1xx or 2xx response to AS						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶97 (after 7th numbered list)			**Config Ref:**	CF_ROAM_AS CF_INT_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
	✓				✓	UE B has received a subsequent request in a dialog from UE A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
			✓	✓		AS B within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↯	⇗			**2xx response** addressed to UE A	
2			↯	⇗		**2xx response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5302_02**						
Summary:	The S-CSCF receives a 1xx or 2xx response and not AS in same trust domain then it shall remove the access-network-charging-info parameter in the P-Charging-Vector header						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.3 ¶97 (after 7th numbered list)			**Config Ref:**	CF_ROAM_AS CF_INT_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
	✓				✓	UE B has received a subsequent request in a dialog from UE A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
				×		AS B not within the trust domain	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↯	⇗			**2xx response** addressed to UE A	
2			↯	⇗		**2xx response** ✓ a P-Charging-Vector header × an access-network-charging-info parameter	

Test Purpose					
Identifier:	**TP_IMS_5206_01**				
Summary:	REGISTER request if there is at least on AS that matches Filter Criteria				
IUT Role:	IMS B				
References:	TS 124 229 (V7.14.0) [1], clause 5.4.1.2.2 ¶7 (item 13 in 2nd numbered list)		**Config Ref:**	CF_ROAM_AS	
	Entities			**Condition**	
	IMS B	**AS B**	**UE B**		
		✓	✓	UE B configured with filter criteria to contact AS B	
	✓		✓	IMS B has challenged with a 401 response the REGISTER request of UE B	
	IMS B	**AS B**	**UE B**		
Step	**Direction**			**Message**	**IF**
1	→		←	**protected REGISTER** ✓ an Authorization header ✓ an integrity-protected parameter set yes	
2	→	←		**third party REGISTER**	
3	→		←	**200 response**	

Test Purpose						
Identifier:	**TP_IMS_5308_01**					
Summary:	Retain the access-network-charging-info parameter from the P-Charging-Vector header in 180 to AS					
IUT Role:	IMS A					
References:	TS 124 229 (V7.14.0) [1], clause 5.4.4.2.2 ¶2			**Config Ref:**	CF_INT_AS CF_ROAM_AS	
	Entities					**Condition**
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**	
	✓		✓			UE A registered in IMS A
				✓	✓	UE B registered in IMS B
		✓	✓			IMS A configured with filter criteria to contact AS A
		✓			✓	AS A has received an initial request for a dialog from UE B
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**	
Step	**Direction**					**Message**
1	→		←			**180 response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter
2		←	←			**180 response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter

Test Purpose							
Identifier:	**TP_IMS_5308_02**						
Summary:	Retain the access-network-charging-info parameter from the P-Charging-Vector header in 200 to AS						
IUT Role:	IMS A						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.4.2.2 ¶2			**Config Ref:**	CF_INT_AS CF_ROAM_AS		
	Entities					**Condition**	
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**		
	✓		✓			UE A registered in IMS A	
				✓	✓	UE B registered in IMS B	
		✓	✓			IMS A configured with filter criteria to contact AS A	
		✓			✓	AS A has received 180 on initial request for dialog from UE B	
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1	↳		↛			**200 response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	
2		↚	↛			**200 response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5310_01**						
Summary:	Retaining the access-network-charging-info parameter from the P-Charging-Vector						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.6.1.2 ¶1			**Config Ref:**	CF_ROAM_AS		
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
	✓				✓	UE B has initiated a dialog with UE A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
				✓		AS B is within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	↛			**subsequent INVITE** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter ✓ a P-Access-Network-Info header	
2			↳	↛		**INVITE** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5310_02**						
Summary:	Not retaining the access-network-charging-info parameter from the P-Charging-Vector						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.6.1.2 ¶1			**Config Ref:**		CF_ROAM_AS	
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
	✓				✓	AS B has initiated a dialog with UE A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
				×		AS B is not within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	↱			**subsequent INVITE** ✓ P-Charging-Vector header ✓ an access-network-charging-info parameter ✓ a P-Access-Network-Info header	
2			↳	↱		**INVITE** ✓ a P-Charging-Vector header ✓ no access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5310_03**						
Summary:	Retaining in UPDATE the access-network-charging-info parameter from the P-Charging-Vector						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.6.1.2 ¶1			**Config Ref:**		CF_ROAM_AS	
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
	✓				✓	UE B has initiated a dialog with UE A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
				✓		AS B is within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1		↳	↱			**subsequent UPDATE** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	
2			↳	↱		**UPDATE** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5310_04**						
Summary:	Not retaining in UPDATEthe access-network-charging-info parameter from the P-Charging-Vector						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.6.1.2 ¶1			**Config Ref:**		CF_ROAM_AS	
	Entities					Condition	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
	✓				✓	UE B has initiated a dialog with UE A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
				×		AS B is not within the trust domain of IMS B	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	Direction					**Message**	**IF**
1		↳	↱			**subsequent UPDATE** ✓ P-Charging-Vector header ✓ an access-network-charging-info parameter	
2			↳	↱		**UPDATE** ✓ a P-Charging-Vector header × access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5312_01**						
Summary:	Retaining the access-network-charging-info parameter from the P-Charging-Vector on 200 (OK) response						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.6.1.3 ¶1			**Config Ref:**		CF_ROAM_AS CF_INT_AS	
	Entities					Condition	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
	✓				✓	UE B has initiated a dialog with UE A	
			✓	✓		IMS B configured with filter criteria to contact AS B	
	✓				✓	UE B having sent subsequent INVITE or UPDATE to UE A	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	Direction					**Message**	**IF**
1		↳	↱			**200 response** addressed to UE B ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	
2			↳	↱		**200 response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5313_01**						
Summary:	Retaining the access-network-charging-info parameter from the P-Charging-Vector on any SIP request						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.6.1.3 ¶2			**Config Ref:**	CF_INT_AS CF_ROAM_AS		
	Entities					**Condition**	
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**		
	✓		✓			UE A registered in IMS B	
				✓	✓	UE B registered in IMS B	
		✓	✓			IMS A configured with filter criteria to contact AS A	
		✓			✓	AS A has initiated a dialog with UE B	
		✓				AS A is within the trust domain of IMS A	
	UE A	**AS A**	**IMSA**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1						**a response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	
2						**The response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5313_02**						
Summary:	Not retaining the access-network-charging-info parameter from the P-Charging-Vector on any SIP request						
Clause:							
References:	TS 124 229 (V7.14.0) [1], clause 5.4.6.1.3 ¶2			**Config Ref:**	CF_INT_AS		
IUT Role:	IMS A			**Test Case:**	**TC_IMS_5313_02**		
	Entities					**Condition**	
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**		
	✓		✓			UE A registered in IMS A	
				✓	✓	UE B registered in IMS B	
		✓	✓			IMS A configured with filter criteria to contact AS A	
		✓			✓	AS A has initiated a dialog with UE B	
		×				AS A is not within the trust domain of IMS A	
	UE A	**AS A**	**IMS A**	**IMS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1						**a response** ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter	
2						**the response** ✓ a P-Charging-Vector header × access-network-charging-info parameter	

Test Purpose							
Identifier:	**TP_IMS_5320_01**						
Summary:	S-CSCF is failing to receive a SIP response or receive 408 (Request Timeout) response or a 5xx response from the AS						
IUT Role:	IMS B						
References:	TS 124 229 (V7.14.0) [1], clause 5.4.3.2 ¶53 (after note 8)			**Config Ref:**		CF_ROAM_AS CF_INT_AS	
	Entities					**Condition**	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
	✓	✓				UE A registered in IMS A	
			✓		✓	UE B registered in IMS B	
				✓	✓	AS B has received an initial request for a dialog from UE B	
			✓	✓		AS B filter criteria default handling in IMS B set to SESSION TERMINATED	
	UE A	**IMS A**	**IMS B**	**AS B**	**UE B**		
Step	**Direction**					**Message**	**IF**
1			⇦‖	‖⇨		**no response**	
2a			⇩		⇗	**408 response**	
2b			⇩		⇗	**5xx response**	

Annex A (normative): Zip file with TPLan code

The test purposes defined in the present document have been automatically generated from the TPLan text files in the archive file ts_18601101v020301p0.zip which accompanies the present document. The raw text files have been converted to a symbolic table format to allow better readability.

Annex B (normative): IMS NNI Interoperability Test Configurations

IMS NNI interoperability test configuration identifiers have been composed using on the following abbreviations:

- REG: Only one UE.
- CALL: One or two UEs.
- AS: One or two UEs plus Application Server for one UE.
- ROAM: UE B is roaming in home network of UE A.
- INT: UE A and B are in interoperating home networks.

Note that all test configurations assume that observable interfaces are indicated as a solid line, non-observable interfaces as indicated dashed lines, and tat IBCF acts in a "pass-through" mode if topology hiding is not required.

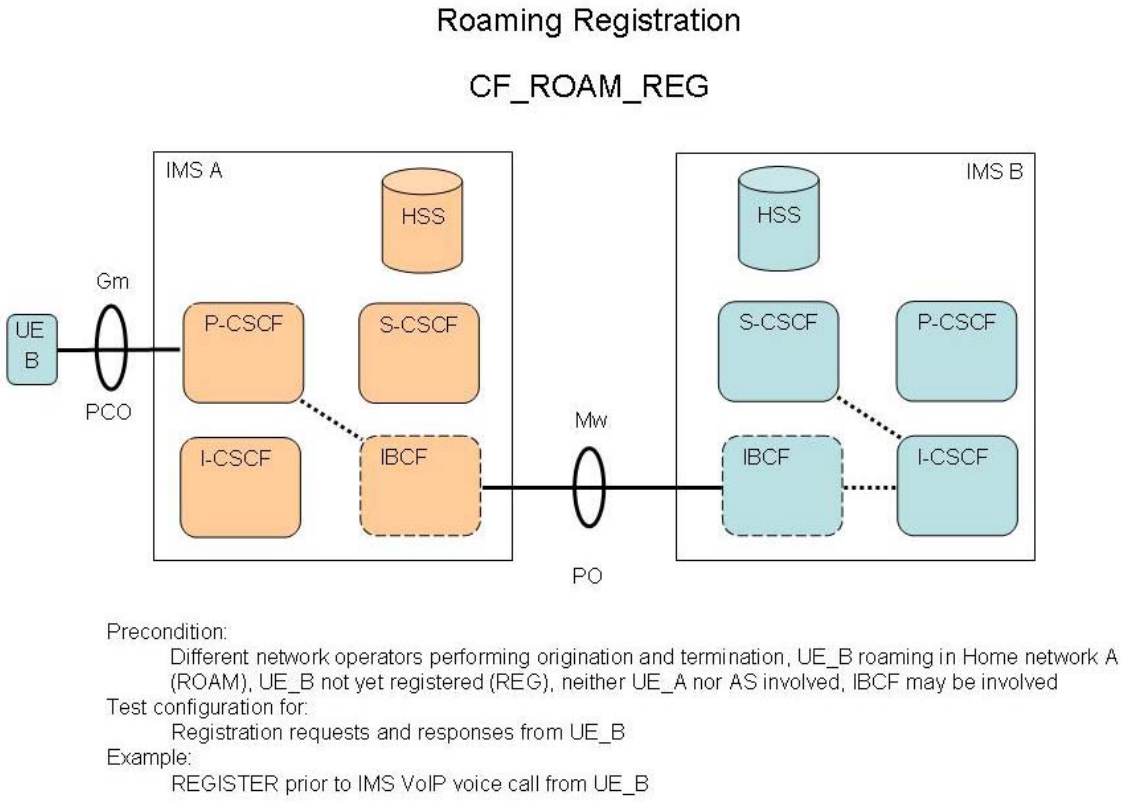
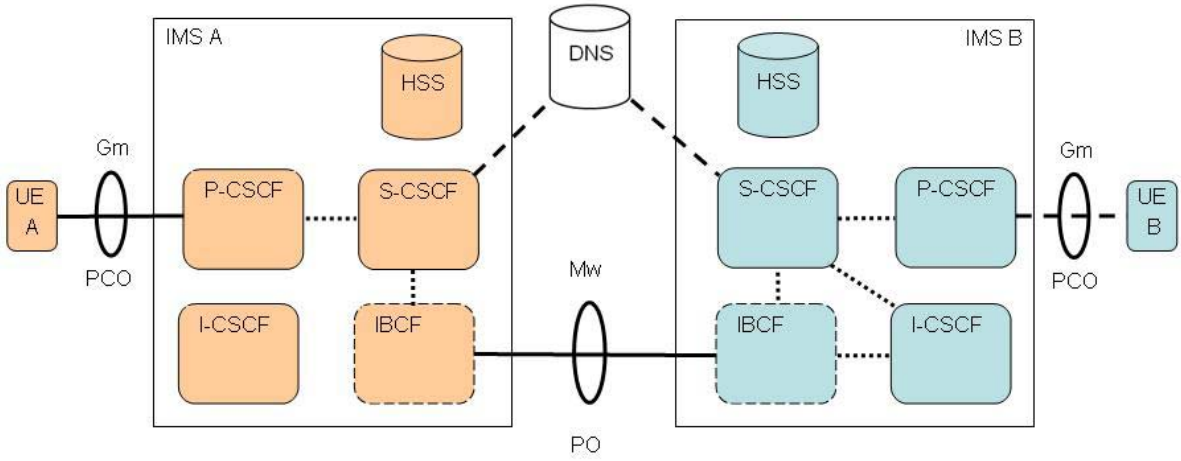


Figure B.1: CF_ROAM_REG

Interworking Call

CF_INT_CALL

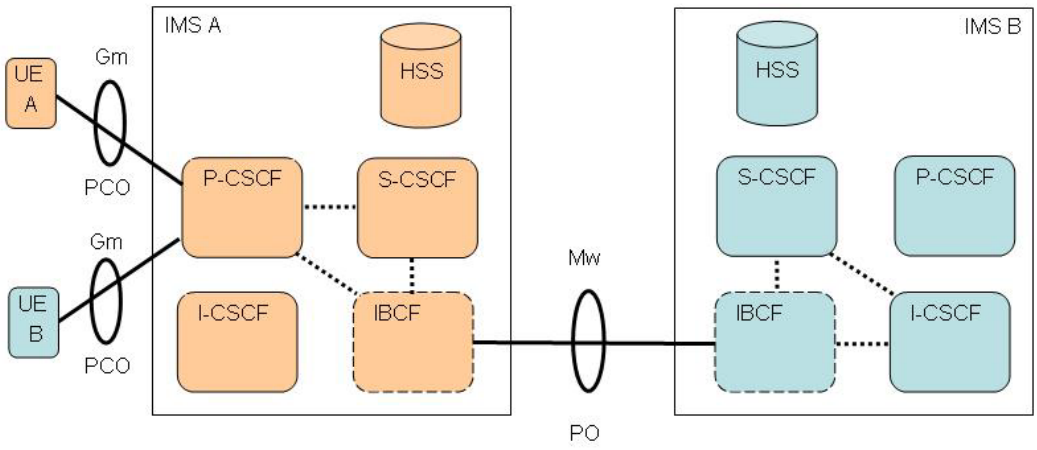


Precondition:
Different network operators performing origination and termination, both UEs or only UE A in home networks (INT), both UE's registered, no AS, a common interconnect DNS and local DNSs for each IMS may be involved, IBCF may be involved
Test configuration for:
Requests and responses between UE_A and UE_B in call (CALL) and messaging scenarios
Unsuccessful initial requests and responses from UE_A (when UE_B is not registered)
Example:
Initial INVITE in IMS VoIP voice call from UE_A to UE_B

Figure B.2: CF_INT_CALL

Roaming Call

CF_ROAM_CALL

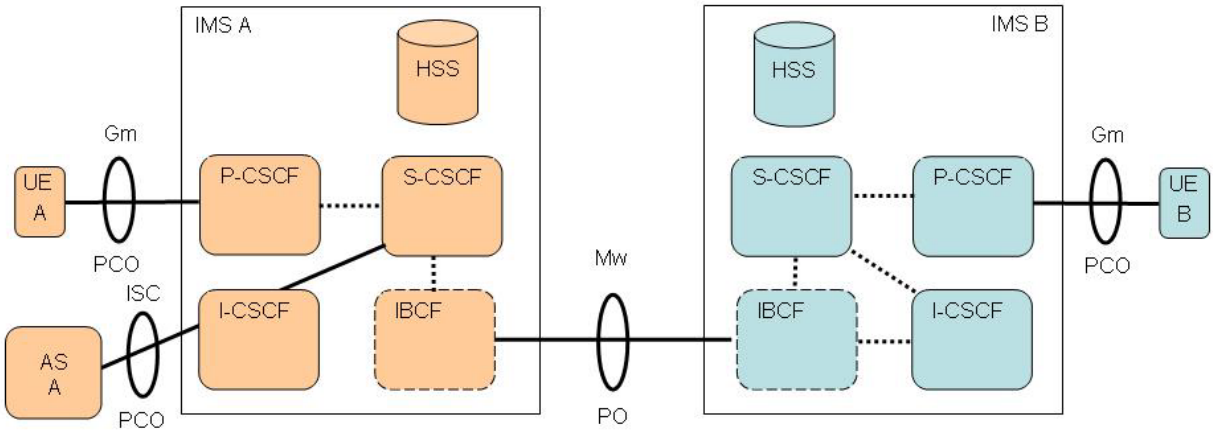


Precondition:
Different network operators performing origination and termination, UE_B roaming (ROAM) via IMS_A, UE_A in home network, both UEs are registered, no AS, IBCF may be involved
Test configuration for:
Requests and responses between UEB and UE_A in call (CALL) and messaging scenarios
Example:
Initial INVITE in IMS VoIP voice call from UE_B to UE_A

Figure B.3: CF_ROAM_CALL

Interworking Application Server

CF_INT_AS

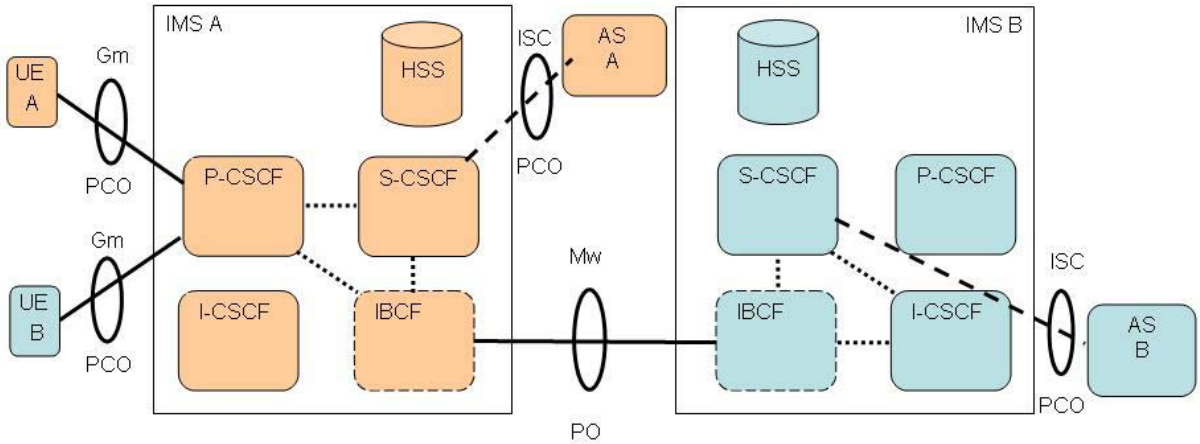


Precondition:
Different network operators performing origination and termination, UE_A and UE_B in home networks (INT), both UEs registered, only AS for UE_A (AS), IBCF may be involved
Test configuration for:
Requests and responses between AS_A and UEs
Example:
Initial INVITE in IMS VoIP voice call unconditionally forwarded to UE_B by AS_A (CFU). AS_A acts as routing AS

Figure B.4: CF_INT_AS

Roaming Application Server

CF_ROAM_AS



Precondition:
Different network operators performing origination and termination, UE_B roaming (ROAM) via IMS_A, UE_A in home network, both UEs or registered, AS for UE_A and UE B may be involved (AS), IBCF may be involved
Test configuration for:
Requests and responses between AS_B and UEs
Unsuccessful initial requests and responses from UE_A (when UE_B and AS_B are not available)
Example:
Initial INVITE IMS VoIP voice call unconditionally forwarded to UE_B by AS_B (CFU). AS_B acts as routing AS

Figure B.5: CF_ROAM_AS

History

Document history		
V1.1.1	March 2009	Publication
V2.2.1	March 2009	Publication
V2.3.1	April 2010	Publication