

IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; Part 1: Test Purposes for IMS NNI Interoperability



Reference

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Foreword

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

The present document is part 1 of a multi-part deliverable covering the IMS NNI Interoperability 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 8 specification.

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 [1].

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 an IMS core network as a whole - not its components - are considered to be under test.

In a separate section a set of test purposes has been developed to cover the MGCF aspects as defined in clause 5.5 of TS 124 229 [1]. To trigger events at the Mg and Mj reference point the IMS core network will connect to a PSTN network via an MGCF. The interworking between IMS and PSTN is described in TS 129 163 [6].

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 specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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 necessary for the application of the present document.

- [1] ETSI TS 124 229 (V8.10.0): "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 8.10.0 Release 8)".
- [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 (V7.2.0): "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)".

- [6] ETSI TS 129 163 (V8.10.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks (3GPP TS 29.163 version 8.10.0 Release 8)".
- [7] Rich Communication Suite Release 2: "Technical Realization 1.1".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Abbreviations

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

3GPP	3 rd Generation Partnership Project
AS	(IMS) Application Server
CF	(Test) Configuration
CN	Core Network
CSCF	Call Session Control Function
DNS	Domain Name System
HSS	Home Subscriber Server
I-CSCF	Interrogating CSCF
IMS	IP Multimedia Subsystem
IBCF	Interconnection Border Control Gateway
IOI	Inter Operator Identifier
IP	Internet Protocol
IUT	Implementation Under Test
MGCF	Media Gateway Control Function
NGN	Next Generation Network
NNI	Network-to-Network Interface
PCO	Point of Control and Observation
P-CSCF	Proxy CSCF
PSTN	Public Switched Telephone Network
RC	Requirements Catalogue
RQ	Requirement
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 [1] which are relevant 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 (V8.10.0), 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
- 6) MGCF tests for IMS-PSTN interconnection

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 [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 clause. TPs in the standardized textual TPLan syntax are collected in archive `ts_18601101v030101p0.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 whereas 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. The "✓" symbol together with "→||" symbol means that the message header **MUST** be present but it cannot contain a specific message parameter value. The "✗" symbol together with "→" symbol means that the message header **MAY** be present but it cannot contain a specific message parameter value.

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

Step	A	B	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 > 1300 bytes					
IUT Role:	IMS A					
References:	TS 124 229 (V8.10.0) [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 1 300 bytes		
2		↘	↗	MESSAGE ✓ the Message Body greater than 1 300 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 (V8.10.0), clause 5.2.1 ¶8			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:	In case of IMS AKA as security mechanism 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 (V8.10.0) [1], clause 5.2.2.1 ¶16 (2 nd numbered list) and 5.2.2.2	Config Ref:		CF_ROAM_REG	
Entities			Condition		
	IMS A	IMS B	UE B		
	x			IMS A not configured for topology hiding	
		✓	✓	user of UE B existing in IMS B	
	x		x	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 <ul style="list-style-type: none"> ✓ a Path header ✓ P-CSCF SIP URI of IMS A ✓ a Require header ✓ a path option tag ✓ a P-Charging-Vector header ✓ an icid-value 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:	In case of IMS AKA as security mechanism 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 (V8.10.0) [1], clause 5.2.2.1 ¶1 ¶16 (2 nd numbered list) and 5.2.2.2		Config Ref:	CF_ROAM_REG	
	Entities			Condition	
	IMS A	IMS B	UE B		
	x			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 <ul style="list-style-type: none"> ✓ 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_5011_03			
Summary:	In case of IMS digest as security mechanism 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 (V8.10.0) [1], clauses 5.2.2.1 ¶16 (2 nd numbered list) and 5.2.2.3	Config Ref:	CF_ROAM_REG	
Entities			Condition	
IMS A	IMS B	UE B		
x			IMS A not configured for topology hiding	
	✓	✓	user of UE B existing in IMS B	
x		x	UE B has not established a security association with IUT	
IMS A	IMS B	UE B		
Step	Direction		Message	IF
1	↔	↔	unprotected REGISTER	
2	↔	↔	REGISTER <ul style="list-style-type: none"> ✓ a Path header ✓ P-CSCF SIP URI of IMS A ✓ a Require header ✓ a path option tag ✓ a P-Charging-Vector header ✓ an icid-value parameter ✓ an orig-ioi parameter <ul style="list-style-type: none"> → IMS A * a term-ioi parameter ✓ a Authorization header ✓ an integrity-protected parameter <ul style="list-style-type: none"> → ip-assoc-pending or * an integrity-protected parameter ✓ a P-Visited-Network-ID header <ul style="list-style-type: none"> → the visited network at the home network 	

Test Purpose				
Identifier:	TP_IMS_5011_04			
Summary:	In case of IMS digest as security mechanism 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 (V8.10.0) [1], clauses 5.2.2.1 ¶1 ¶16 (2 nd numbered list) and 5.2.2.3	Config Ref:	CF_ROAM_REG	
Entities			Condition	
IMS A	IMS B	UE B		
x			IMS A not configured for topology hiding	
	✓	✓	user of UE B existing in IMS B	
x		x	UE B has established a security association with IUT	
IMS A	IMS B	UE B		
Step	Direction		Message	IF
1	↔	↔	protected REGISTER	
2	↔	↔	REGISTER <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> → IMS A * a term-ioi parameter ✓ a Authorization header ✓ an integrity-protected parameter <ul style="list-style-type: none"> → ip-assoc-yes ✓ a P-Visited-Network-ID header <ul style="list-style-type: none"> → 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 (V8.10.0) [1], clause 5.2.2.1 ¶33 (item 6 in 2 nd 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	⇐	⇒		Any 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 (V8.10.0) [1], clause 5.2.2.1 ¶33 (item 6 in 2 nd 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 (V8.10.0) [1], clause 5.2.2.1 ¶33 (item 6 in 2 nd 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 (V8.10.0) [1], clause 5.2.3 ¶2 (1 st numbered list)	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
1	↵	↵		200 response
2	↵	↵		SUBSCRIBE <ul style="list-style-type: none"> ✓ a Request URI ✓ "the resource to which the P-CSCF wants to subscribe to" and ✓ a From header <ul style="list-style-type: none"> ✓ P-CSCF_SIP_URI of IMS_A and ✓ a To_header <ul style="list-style-type: none"> ✓ the default_public_user_identity of UE_B and ✓ an Event_header <ul style="list-style-type: none"> ✓ the reg event package and ✓ an Expires_header <ul style="list-style-type: none"> → "a value greater than the one in the Expires_header of the 200_response" and ✓ a P-Asserted-Identity_header <ul style="list-style-type: none"> ✓ the P-CSCF_SIP_URI of IMS_A and ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value 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 (V8.10.0) [1], clause 5.4.1.2.1 ¶7 (item 2 in 1 st numbered list)	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	
	x	x	UE B not de-registered in IMS B	
IMS A	IMS B	UE B		
Step	Direction		Message	IF
1a		↔	initial REGISTER ✓ an Authorization header ✓ an integrity-protected parameter → no or tls-pending or ip-assoc-pending	
1b		↔	initial REGISTER ✓ an Authorization header * an integrity-protected parameter	
2	↔	↔	NOTIFY ✓ a Request URI → the P-CSCF SIP URI of IMS A ✓ an Event header → the reg event package ✓ a P-Charging-Vector header ✓ an icid-value parameter ✓ 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:	In case of IMS AKA as security mechanism the 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 (V8.10.0) [1], clause 5.4.1.2.1A ¶1	Config Ref:	CF_ROAM_REG	
Entities			Condition	
IMS A	IMS B	UE B		
	✓	✓	user of UE B existing in IMS B	
	x	x	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_5089_02			
Summary:	In case of SIP digest as security mechanism the 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 (V8.10.0) [1], clause 5.4.1.2.1B ¶1	Config Ref:	CF_ROAM_REG	
Entities			Condition	
IMS A	IMS B	UE B		
	✓	✓	user of UE B existing in IMS B	
	x	x	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	
2	↶	↵	401 response ✓ an WWW-Authenticate header ✓ a realm parameter → the operator identifier of IMS B ✓ a nonce parameter ✓ an algorithm parameter → MD5 ✓ a qop parameter → auth	

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 (V8.10.0) [1], clause 5.4.1.2.2F ¶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	
	x	x	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	
2	↵	⇒	200 response <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> → first the default public user identity no barred public user identities ✓ a Service-Route header <ul style="list-style-type: none"> → the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header ✓ a term-voi parameter <ul style="list-style-type: none"> → operator identifier of IMS B ✓ a Contact header <ul style="list-style-type: none"> → 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 (V8.10.0) [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 <ul style="list-style-type: none"> ✓ an Event header <ul style="list-style-type: none"> → the reg event package 	
2		⇒	2xx response <ul style="list-style-type: none"> ✓ an Expires header <ul style="list-style-type: none"> → 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 (V8.10.0) [1], clause 5.4.1.5 ¶6 (numbered list)		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	↔	↔	<p>NOTIFY</p> <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → UE_B ✓ an Event header <ul style="list-style-type: none"> → the reg event package ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value parameter ✓ a Route header <ul style="list-style-type: none"> → the original Route header from SUBSCRIBE ✓ a Message Body <ul style="list-style-type: none"> ✓ for each registered public identity of UE B <ul style="list-style-type: none"> a registration element <ul style="list-style-type: none"> ✓ an aor attribute <ul style="list-style-type: none"> → registered public identity of UE B ✓ a state attribute <ul style="list-style-type: none"> → terminated ✓ a contact subelement <ul style="list-style-type: none"> ✓ an event attribute <ul style="list-style-type: none"> → deactivated or rejected ✓ a state attribute <ul style="list-style-type: none"> → terminated ✓ a URI subelement <ul style="list-style-type: none"> → the contact address of UE B 	
3	↔	↔	<p>NOTIFY</p> <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → UE_A ✓ an Event header <ul style="list-style-type: none"> → the reg event package ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value parameter ✓ a Route header <ul style="list-style-type: none"> → the original Route header from SUBSCRIBE ✓ a Message Body <ul style="list-style-type: none"> ✓ for each registered public identity of UE A <ul style="list-style-type: none"> a registration element <ul style="list-style-type: none"> ✓ an aor attribute <ul style="list-style-type: none"> → registered public identity of UE A ✓ a state attribute <ul style="list-style-type: none"> → terminated ✓ a contact subelement <ul style="list-style-type: none"> ✓ an event attribute <ul style="list-style-type: none"> → deactivated or rejected ✓ a state attribute <ul style="list-style-type: none"> → terminated ✓ a URI subelement <ul style="list-style-type: none"> → 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 (V8.10.0) [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 <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → UE_B ✓ an Event header <ul style="list-style-type: none"> → the reg event package ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value parameter ✓ a Route header <ul style="list-style-type: none"> → the original Route header from SUBSCRIBE ✓ a Message Body <ul style="list-style-type: none"> ✓ for each registered public identity of UE B <ul style="list-style-type: none"> a registration element <ul style="list-style-type: none"> ✓ an aor attribute <ul style="list-style-type: none"> → registered public identity of UE B ✓ a state attribute <ul style="list-style-type: none"> → active ✓ a contact subelement <ul style="list-style-type: none"> ✓ an event attribute <ul style="list-style-type: none"> → shortened ✓ a state attribute <ul style="list-style-type: none"> → active ✓ a URI subelement <ul style="list-style-type: none"> → the contact address of UE B 	
3	↘	↗	NOTIFY <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → the P-CSCF_SIP_URI of IMS_A ✓ an Event header <ul style="list-style-type: none"> → the reg event package ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value parameter ✓ a Route header <ul style="list-style-type: none"> → the original Route header from SUBSCRIBE ✓ a Message Body <ul style="list-style-type: none"> ✓ for each registered public identity of UE A <ul style="list-style-type: none"> a registration element <ul style="list-style-type: none"> ✓ an aor attribute <ul style="list-style-type: none"> → registered public identity of UE B ✓ a state attribute <ul style="list-style-type: none"> → active ✓ a contact subelement <ul style="list-style-type: none"> ✓ an event attribute <ul style="list-style-type: none"> → shortened ✓ a state attribute <ul style="list-style-type: none"> → active ✓ a URI subelement <ul style="list-style-type: none"> → 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 (V8.10.0) [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	
x	x		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 (V8.10.0) [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 (V8.10.0) [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 (V8.10.0) [1], clause 5.10.2.1 ¶1 (item 3 in 1 st 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	↔	↔	Any 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 (V8.10.0) [1], clause 5.10.2.1 ¶1 (item 3 in 1 st 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 (V8.10.0) [1], clause 5.10.2.1 ¶1 (item 3 in 1 st 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_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 (V8.10.0) [1], clause 5.10.3.1 ¶1 (item 1 in 1 st numbered list)	Config Ref:	CF_ROAM_REG	
	Entities			Condition
	IMS A	IMS B		
		✓		IMS B configured for topology hiding
	x	x		IMS A not within the trust domain of IMS B
	IMS A	IMS B		
Step	Direction			Message
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 (V8.10.0) [1], clause 5.2.6.3.3 ¶1 (1 st numbered list)	Config Ref:	CF_ROAM_CALL	
	Entities			Condition
	UE A	IMS A	IMS B	UE B
	✓	✓		
			✓	✓
		x		
	UE A	IMS A	IMS B	UE B
Step	Direction			Message
1		↔		↔
				initial INVITE
2		↔	↔	INVITE <ul style="list-style-type: none"> ✓ a topmost Route header → the P-CSCF SIP URI of IMS A ✓ a Route header <ul style="list-style-type: none"> ✓ the list of Service Route header URIs from the registration ✓ an additional Via header <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ an address of UE B ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value 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 (V8.10.0) [1], clause 5.2.6.3.3 ¶1 (1 st 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 <ul style="list-style-type: none"> ✓ a topmost Route header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A → the P-CSCF SIP URI of IMS A ✓ a Route header <ul style="list-style-type: none"> ✓ the list of Service Route header URIs from the registration ✓ an additional Via header <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ an address of UE A ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value parameter 	

Test Purpose						
Identifier:	TP IMS 5046 03					
Summary:	When the P-CSCF receives an initial 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 (V8.10.0) [1], clause 5.2.6.3.3 ¶1 (1 st 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	
		x			IMS A not configured for topology hiding	
	UE A	IMS A	IMS B	UE B		
Step	Direction				Message	IF
1		↶		↷	SUBSCRIBE	
2		↶	↷		SUBSCRIBE <ul style="list-style-type: none"> ✓ a topmost Route header <ul style="list-style-type: none"> ➔ the P-CSCF SIP URI of IMS A ✓ a Route header <ul style="list-style-type: none"> ✓ the list of Service Route header URIs from the registration ✓ an additional Via header <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ an address of UE A ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value parameter 	

Test Purpose						
Identifier:	TP_IMS_5046_04					
Summary:	When the P-CSCF receives an initial 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 (V8.10.0) [1], clause 5.2.6.3.3 ¶1 (1 st 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		↶		↷	SUBSCRIBE	
2		↶	↷		SUBSCRIBE <ul style="list-style-type: none"> ✓ a topmost Route header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A → the P-CSCF SIP URI of IMS A ✓ a Route header <ul style="list-style-type: none"> ✓ the list of Service Route header URIs from the registration ✓ an additional Via header <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ 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 <ul style="list-style-type: none"> ✓ an address of UE A ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an icid-value 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 (V8.10.0) [1], clause 5.2.6.3.5 ¶1 (1 st 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 <ul style="list-style-type: none"> ✓ a topmost Route header <ul style="list-style-type: none"> → the P-CSCF SIP URI of IMS A ✓ an additional Via header <ul style="list-style-type: none"> ✓ 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 (V8.10.0) [1], clause 5.2.6.3.9 ¶1 (1 st 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 <ul style="list-style-type: none"> * a Route header <ul style="list-style-type: none"> ✓ the P-CSCF SIP URI of IMS A ✓ the same Record-Route header as in the previous ACK ✓ a P-Charging-Vector header ✓ an icid-value parameter 		

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 (V8.10.0) [1], clause 5.2.6.3.11 ¶1 (1 st 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		
	x			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 <ul style="list-style-type: none"> ✓ a Route header <ul style="list-style-type: none"> → 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 (V8.10.0) [1], clause 5.2.6.3.11 ¶1 (1 st 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 <ul style="list-style-type: none"> ✓ a Route header <ul style="list-style-type: none"> → 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 (V8.10.0) [1], clause 5.2.6.4.4 ¶1 (1 st 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 <ul style="list-style-type: none"> ✓ a Record-Route header <ul style="list-style-type: none"> → 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 (V8.10.0) [1], clause 5.2.6.4.4 ¶1 (1 st 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 <ul style="list-style-type: none"> ✓ a Record-Route header <ul style="list-style-type: none"> → 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 (V8.10.0) [1], clause 5.2.7.2 ¶5			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 <ul style="list-style-type: none"> ✓ 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 (V8.10.0) [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 (V8.10.0) [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 <ul style="list-style-type: none"> ✓ 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 (V8.10.0) [1], clause 5.2.8.1.2 ¶1 (item 1 in 1 st numbered list)			Config Ref:	CF_INT_CALL	
Entities					Condition	
UE A	IMS A	NWK	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	NWK	IMS B	UE B		
Step	Direction				Message	IF
1			↵	↶	an indication that UE B is no longer available	
2		↶		↵	BYE <ul style="list-style-type: none"> ✓ 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 (V8.10.0) [1], clause 5.2.8.1.2 ¶1 (item 3 in 1 st numbered list)			Config Ref:	CF_INT_CALL	
Entities				Condition		
UE A	IMS A	NWK	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	NWK	IMS B	UE B		
Step	Direction				Message	IF
1			↵	↶	an indication that UE B is no longer available	
2		↶		↵	BYE <ul style="list-style-type: none"> ✓ Request URI <ul style="list-style-type: none"> → Contact header value of UE A ✓ To header <ul style="list-style-type: none"> → initial 200 OK From value from UE B ✓ From header <ul style="list-style-type: none"> → initial INVITE To value from UE A ✓ Call-ID header <ul style="list-style-type: none"> → initial INVITE Call Id value from UE A ✓ CSeq header <ul style="list-style-type: none"> ✓ an incremented Sequence Number ✓ Route header <ul style="list-style-type: none"> → dialog specific routing information for UE A ✓ Reason header <ul style="list-style-type: none"> → 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 (V8.10.0), 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 <ul style="list-style-type: none"> ✓ 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 (V8.10.0), 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 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 (V8.10.0), 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 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 (V8.10.0), 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 insert 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 (V8.10.0), clause 5.4.3.2 ¶11 (1 st numbered list)			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 <ul style="list-style-type: none"> ✗ a Route header <ul style="list-style-type: none"> → the S-CSCF SIP URI of IMS A ✓ a P-Charging-Vector header ✓ an icid-value parameter ✓ an orig-ioi parameter <ul style="list-style-type: none"> → IMS A ✗ an access-network-charging-info parameter ✗ a term-ioi parameter ✓ a Record-Route header <ul style="list-style-type: none"> → 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 (V8.10.0), clause 5.4.3.2 ¶11 (item 9 1 st 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 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 <ul style="list-style-type: none"> ✓ a P-Asserted-Identity header <ul style="list-style-type: none"> → the SIP URI of UE A ✓ a P-Asserted-Identity header <ul style="list-style-type: none"> → 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 (V8.10.0), clause 5.4.3.2 ¶11 (item 10 1 st numbered list)			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 (V8.10.0), clause 5.4.3.2 ¶108 (6 th 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 (V8.10.0), clause 5.4.3.2 ¶108 (6 th 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 (V8.10.0), clause 5.4.3.2 ¶119 (item 1 in 8 th 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	↵	↶		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 (V8.10.0), clause 5.4.3.2 ¶119 (item 1 in 8 th 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 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 (V8.10.0), clause 5.4.3.2 ¶119 (item 1 in 8 th 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 (V8.10.0), clause 5.4.3.2 ¶119 (item 1 in 8 th 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 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 (V8.10.0), clause 5.4.3.3 ¶8 (item 1 in 1 st 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 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 (V8.10.0), clause 5.4.3.3 ¶91 (item 2 in 4 th 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 (V8.10.0), clause 5.4.3.3 ¶91 (item 2 in 4 th 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			↵	↵	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 (V8.10.0), clause 5.4.3.3 ¶92 (item 3 in 4 th 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 (V8.10.0), clause 5.4.3.3 ¶92 (item 3 in 4 th 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 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-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 (V8.10.0), clause 5.4.3.3 ¶99 (item 3 and 5 in 7 th 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 (V8.10.0), clause 5.4.3.3 ¶99 (item 3 and 5 in 7 th 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 (V8.10.0), clause 5.4.3.3 ¶123 (9 th 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 (V8.10.0), clause 5.4.3.3 ¶123 (9 th 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 (V8.10.0), clause 5.4.3.3 ¶126 (10 th 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:	In case the S-CSCF serves the calling user and 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 (V8.10.0), clause 5.4.5.1.2 ¶1 (item 1 and 2 in 1 st numbered list)			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 <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → Contact header value of UE B ✓ a To header <ul style="list-style-type: none"> → the To header of the 200 response to initial INVITE ✓ a From header <ul style="list-style-type: none"> → the From header of the initial INVITE ✓ a Call-ID header <ul style="list-style-type: none"> → the Call-ID header of the initial ✓ a CSeq header <ul style="list-style-type: none"> → CSeq header of the calling user incremented by one ✓ a Route header <ul style="list-style-type: none"> → routing information towards the called user as stored for the dialog ✓ a Reason header <ul style="list-style-type: none"> → further headers, based on local policy or the requested session release reason 	
2	↵		↵			BYE <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → Contact address of UE A ✓ a To header <ul style="list-style-type: none"> → the From header of the initial INVITE ✓ a From header <ul style="list-style-type: none"> → the To header of the 200 response to initial ✓ a Call-ID header <ul style="list-style-type: none"> → the Call-ID header of the initial INVITE ✓ a CSeq header <ul style="list-style-type: none"> → CSeq header of the called user incremented by one ✓ a Route header <ul style="list-style-type: none"> → routing information towards the calling user as stored for the dialog ✓ a Reason header <ul style="list-style-type: none"> → further headers, based on local policy or the requested session release reason 	

Test Purpose						
Identifier:	TP IMS 5139 02					
Summary:	In case the S-CSCF serves the called user and 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 B					
References:	TS 124 229 (V8.10.0), clause 5.4.5.1.2 ¶1 (item 3 and 4 in 1 st numbered list)			Config Ref:	CF_INT_CALL	
Entities					Condition	
UE A	IMS A	IMS B	NWK	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	NWK	UE B		
Step	Direction				Message	IF
1			↔	↔	network internal indication that the lifetime of the last public user identity has expired	
2	↔		↔		BYE <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → Contact header value of UE A ✓ a To header <ul style="list-style-type: none"> → the From header of the initial INVITE ✓ a From header <ul style="list-style-type: none"> → the To header of the 200 response to initial INVITE ✓ a Call-ID header <ul style="list-style-type: none"> → the Call-ID header of the initial INVITE ✓ a CSeq header <ul style="list-style-type: none"> → CSeq header of the called user incremented by one ✓ a Route header <ul style="list-style-type: none"> → routing information towards the calling user as stored for the dialog ✓ a Reason header ✓ further headers, based on local policy or the requested session release reason 	
2			↔	↔	BYE <ul style="list-style-type: none"> ✓ a Request URI <ul style="list-style-type: none"> → Contact address of UE A ✓ a To header <ul style="list-style-type: none"> → the To header of the 200 response to initial INVITE ✓ a From header <ul style="list-style-type: none"> → the From header of the initial INVITE ✓ a Call-ID header <ul style="list-style-type: none"> → the Call-ID header of the initial INVITE ✓ a CSeq header <ul style="list-style-type: none"> → CSeq header of the calling user incremented by one ✓ a Route header <ul style="list-style-type: none"> → routing information towards the calling 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

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 (V8.10.0), clause 5.3.2.1 ¶62 (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 an initial request for a dialog from UE A		
Step	Direction			Message		IF
1			↵	↵	180 response addressed to UE A	
2		↵	↵		180 response * a P-Charging-Function-Addresses header	

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 (V8.10.0), clause 5.3.2.1 ¶Clause 5.3.2.1 ¶62 (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 A has received 180 on initial request for dialog from UE B		
Step	Direction			Message		IF
1			↵	↵	2xx response addressed to UE A	
2		↵	↵		2xx response * a P-Charging-Function-Addresses header	

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 (V8.10.0), clause 5.3.2.1 ¶54 (after 5 th numbered list)			Config Ref:	CF_INT_CALL	
Entities				Condition		
UE A	IMS A	IMS B	UE B			
✓	✓			UE A registered in IMS A		
		x		IMS B not configured with local policy to attempt request routing		
		x	x	UE B not registered in IMS 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	

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 (V8.10.0), clause 5.3.2.1 ¶55 (before 6 th numbered list)		Config Ref:	CF_INT_CALL	
Entities				Condition	
UE A	IMS A	IMS B	UE B		
✓	✓			UE A registered in IMS A	
		x	x	UE B not registered in IMS B	
		x	x	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

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 (V8.10.0), clause 5.10.4.1 ¶7 (after note 3)		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	
2		↵	⇒	initial INVITE ✓ an additional topmost Record-Route header ✓ the IBCF SIP URI of IMS A	

Test Purpose					
Identifier:	TP_IMS_5137_01				
Summary:	The IBCF shall perform encryption for topology hiding before an initial INVITE request is sent				
IUT Role:	IMS A				
References:	TS 124 229 (V8.10.0), clause 5.10.4.2 ¶1 (items 7 & 8 in 1 st 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 Route header → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

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 (V8.10.0), clause 5.10.4.2 ¶1 (item 8 in 1 st 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	
		✓		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	

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 (V8.10.0), clause 5.10.4.2 ¶(item 8 in 1 st 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		
		✓		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	

Test Purpose						
Identifier:	TP_IMS_5137_04					
Summary:	The IBCF shall perform encryption for topology hiding before an initial REGISTER request is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V8.10.0), clauses 5.10.4.1 and 5.10.4.2 ¶1 (1 st 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	Direction			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 Route header → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Path header → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter	

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 (V8.10.0), clause 5.10.2.2 ¶1 (item 8 in 1 st 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		

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 (V8.10.0), clause 5.10.2.3 ¶1 (item 4 in 1 st 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 <ul style="list-style-type: none"> ✓ a Via header <ul style="list-style-type: none"> ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header <ul style="list-style-type: none"> ➔ the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter 		

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 (V8.10.0), clause 5.10.2.3 ¶1 (item 4 in 1 st 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 <ul style="list-style-type: none"> ✓ a Via header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter 		

Test Purpose						
Identifier:	TP IMS 5408_03					
Summary:	The IBCF shall perform encryption for topology hiding before BYE request is sent					
IUT Role:	IMS A					
References:	TS 124 229 (V8.10.0), clause 5.10.2.3 ¶1 (item 4 in 1 st 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 <ul style="list-style-type: none"> ✓ a Via header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter 		

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 (V8.10.0), clause 5.10.2.3 ¶1 (item 4 in 1 st 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 <ul style="list-style-type: none"> ✓ a Via header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter ✓ a Route header <ul style="list-style-type: none"> → the IBCF SIP URI of IMS A ✓ encrypted consecutive header entries ✓ a tokenized-by parameter 		

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 (V8.10.0), clause 5.10.3.2 ¶12 (item 1 in 1 st 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		

Test Purpose						
Identifier:	TP_IMS_CONTENT_SHARE_01					
Summary:	The IBCF shall pass content share specific information in the OPTIONS request					
IUT Role:	IMS A					
References:	Rich Communication Suite Release 2, Technical realization [7], clause 8.1			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 initiated a dialog with UE B		
UE A	IMS A	IMS B	UE B			
Step	Direction			Message	IF	
1	↵	↶		OPTIONS addressed to UE B		
2		↵	↶	OPTIONS <ul style="list-style-type: none"> ✓ a Contact header <ul style="list-style-type: none"> → +g.3gpp.cs-voice feature tag ✓ a Accept-Contact header <ul style="list-style-type: none"> → +g.3gpp.cs-voice feature tag 		

Test Purpose						
Identifier:	TP_IMS_CONTENT_SHARE_02					
Summary:	The IBCF shall pass content share specific information in the subsequent INVITE request					
IUT Role:	IMS A					
References:	Rich Communication Suite Release 2, Technical realization [7], clause 8.1			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 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 Contact header → +g.3gpp.cs-voice feature tag ✓ a Accept-Contact header → +g.3gpp.cs-voice feature tag		

Test Purpose						
Identifier:	TP_IMS_CONTENT_SHARE_03					
Summary:	The IBCF shall transport content sharing rejection in 603 response					
IUT Role:	IMS A					
References:	Rich Communication Suite Release 2, Technical realization [7], clause 8.1			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 initiated a dialog with UE B		
UE A	IMS A	IMS B	UE B			
Step	Direction			Message	IF	
1		↶	↵	603 response		
2		↶	↵	603 response		

Test Purpose						
Identifier:	TP_IMS_CONTENT_SHARE_04					
Summary:	The IBCF shall transport content sharing rejection in 603 response					
IUT Role:	IMS A					
References:	Rich Communication Suite Release 2, Technical realization [7], clause 8.1			Config Ref:	CF_INT_ROAM	
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		↶	↵	603 response		
2		↶	↵	603 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 (V8.10.0), clause 5.2.6.3.3 ¶(1 st 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		
	x			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-value parameter	

5.5.2 Messaging at S-CSCF

Test Purpose						
Identifier:	TP_IMS_5097_05					
Summary:	S-CSCF must insert orig-voi parameter, remove access-network-charging-info parameter before sending MESSAGE over NNI					
IUT Role:	IMS A					
References:	TS 124 229 (V8.10.0), 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		
	x			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-value parameter ✓ an orig-voi parameter → IMS A * an access-network-charging-info parameter * a term-voi parameter	

Test Purpose						
Identifier:	TP IMS_5097_06					
Summary:	S-CSCF inserts a second P-Asserted-Identity header indicating a tel URI					
IUT Role:	IMS A					
References:	TS 124 229 (V8.10.0), clause 5.4.3.2 ¶11 (item 9 in 1 st 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 registered public identities containing a 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_07					
Summary:	S-CSCF inserts a second P-Asserted-Identity header indicating a SIP URI					
IUT Role:	IMS A					
References:	TS 124 229 (V8.10.0), clause 5.4.3.2 ¶11 (item 9 in 1 st 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 registered public identities containing a Tel 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 (V8.10.0), clause 5.4.3.2 ¶11 (item 10 in 1 st numbered)			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 (V8.10.0), clause 5.4.3.2 ¶11 (item 5 and 8 in 1 st numbered list)			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 ✓ a P-Charging-Vector header ✓ an access-network-charging-info parameter ✓ an orig-ioi parameter → IMS A	

Test Purpose						
Identifier:	TP_IMS_5108_01					
Summary:	Standalone request; terminated at the served user					
IUT Role:	IMS B					
References:	TS 124 229 (V8.10.0), clause 5.4.3.3 ¶5 (1 st 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	IMS A	IMS B	UE B			
Step	Direction			Message	IF	
1		↵	⇒	INVITE addressed to UE B ✓ a P-Charging-Vector header ✓ an icid-value parameter		
2		↵	↵	INVITE ✓ Route header → the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header ✓ the same icid-value parameter * ioi parameters ✓ a Record-Route header ✓ the S-CSCF SIP URI of IMS B		

Test Purpose						
Identifier:	TP_IMS_5108_02					
Summary:	Standalone request; terminated at the served user					
IUT Role:	IMS B					
References:	TS 124 229 (V8.10.0), clause 5.4.3.3 ¶5 (1 st 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	IMS A	IMS B	UE B			
Step	Direction			Message	IF	
1		↵	⇒	MESSAGE addressed to UE B ✓ a P-Charging-Vector header ✓ an icid-value parameter		
2		↵	↵	MESSAGE ✓ Route header → the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header ✓ the same icid-value 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 (V8.10.0), clause 5.4.3.3 ¶16 (item 1 in 1 st 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 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 parameter from 1xx response to standalone transaction					
IUT Role:	IMS B					
References:	TS 124 229 (V8.10.0), clause 5.4.3.3 ¶100 (item 2 in 5 th 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		
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 (V8.10.0), clause 5.4.3.3 ¶100 (item 2 in 5 th 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		
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 (V8.10.0), clause 5.4.3.3 ¶(item 1 in 5 th 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 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 (V8.10.0), clause 5.4.3.3 ¶100 (item 1 in 5 th 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 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 (V8.10.0), clause 5.4.3.3 ¶105 (item 2 in 6 th 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 <ul style="list-style-type: none"> ✓ a P-Charging-Vector header ✓ an orig-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS A ✓ a term-ioi parameter <ul style="list-style-type: none"> → 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 (V8.10.0), clause 5.4.3.2 ¶11 (items 5 and 8 in 1 st numbered list)			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 <ul style="list-style-type: none"> ✓ a Route header <ul style="list-style-type: none"> → the SIP URI of AS B ✓ a P-Charging-Function-Addresses header ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an orig-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS A × a term-ioi parameter ✓ access-network-charging-info 		

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 (V8.10.0), clause 5.4.3.2 ¶11 (items 5 and 8 in 1 st numbered list)			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 <ul style="list-style-type: none"> ✓ a Route header <ul style="list-style-type: none"> → the SIP URI of AS B ✓ a P-Charging-Function-Addresses header ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an orig-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS A × a term-ioi parameter ✓ access-network-charging-info 	

Test Purpose						
Identifier:	TP_IMS_5097_14					
Summary:	Initial request for a dialog handling by S-CSCF with matching filter criteria AS					
IUT Role:	IMS A					
References:	TS 124 229 (V8.10.0), clause 5.4.3.2 ¶11 (items 5 and 8 in 1 st numbered list)			Config Ref:	CF_IP_TV	
Entities				Condition		
UE A	IMS A		AS A			
✓	✓			UE A registered in IMS A		
	✓		✓	IMS A configured with filter criteria to contact AS A		
UE A	IMS A		AS A			
Step	Direction				Message	IF
1		↵	↶		SUBSCRIBE <ul style="list-style-type: none"> ✓ a Route header <ul style="list-style-type: none"> → the SIP URI of AS A ✓ a P-Charging-Function-Addresses header ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an orig-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS A × a term-ioi parameter ✓ access-network-charging-info 	

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 (V8.10.0), clause 5.4.3.3 ¶5 (item 4 in 1 st numbered list)			Config Ref:	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 <ul style="list-style-type: none"> ✓ a topmost Route header <ul style="list-style-type: none"> → the SIP URI of AS B ✓ a Route header <ul style="list-style-type: none"> → the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an orig-ioi parameter <ul style="list-style-type: none"> → 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 (V8.10.0), clause 5.4.3.3 ¶5 (item 4 in 1 st numbered list)			Config Ref:	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 <ul style="list-style-type: none"> ✓ a topmost Route header <ul style="list-style-type: none"> → the SIP URI of AS B ✓ a Route header <ul style="list-style-type: none"> → the S-CSCF SIP URI of IMS B ✓ a P-Charging-Vector header <ul style="list-style-type: none"> ✓ an orig-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS A × a term-ioi parameter 	

Test Purpose							
Identifier:	TP_IMS_5108_07						
Summary:	Request for a initial dialog terminated at the served user (SUBSCRIBE)						
IUT Role:	IMS B						
References:	TS 124 229 (V8.10.0), clause 5.4.3.3 ¶(item 4 in 1 st numbered list)			Config Ref:		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 (V8.10.0), clause 5.4.3.3 ¶176 (after 2 nd numbered list)			Config Ref:		CF_INT_CALL CF_ROAM_CALL	
Entities					Condition		
UE A	IMS A	IMS B	AS 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	AS 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 (V8.10.0), clause 5.4.3.3 ¶179 (after 6 th 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 (V8.10.0), clause 5.4.3.3 ¶85 (item 3 in 3 rd 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 B	
				x	UE B not registered	
			x		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 (V8.10.0), clause 5.4.3.3 ¶85 (item 3 in 3 rd 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	
				x	UE B not registered	
			x		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 (V8.10.0), clause 5.4.3.3 ¶89 (4 th 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 <ul style="list-style-type: none"> ✓ 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 (V8.10.0), clause 5.4.3.3 ¶189 (4 th 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 <ul style="list-style-type: none"> ✓ a P-Charging-Vector header ✓ an orig-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS A ✓ a term-ioi parameter <ul style="list-style-type: none"> → 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 (V8.10.0), clause 5.4.3.3 ¶106 (item 2 in 6 th 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 <ul style="list-style-type: none"> ✓ a P-Charging-Vector header ✓ an orig-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS A ✓ a term-ioi parameter <ul style="list-style-type: none"> → operator identifier of IMS B 		

Test Purpose							
Identifier:	TP IMS 5302_01						
Summary:	The S-CSCF shall retain 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 (V8.10.0), clause 5.4.3.3 ¶(after 11 th 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 (V8.10.0), clause 5.4.3.3 ¶(after 11 th 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	
				x		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 x an access-network-charging-info parameter	

Test Purpose (TO BE REVISITED)				
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 (V8.10.0), clause 5.4.1.2.2F ¶15 (before note 3)	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 on (yes or tls-pending or tls-yes or ip-assoc-pending or ip-assoc-yes)	
2	↵	↵	third party REGISTER ✓ a P-Access-Network-Info header ✓ a P-Visited-Network-ID header	
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 (V8.10.0), clause 5.4.4.2.2 ¶12	Config Ref:	CF_INT_AS CF_ROAM_AS	
Entities			Condition	
UE A	AS A	IMS A	IMS B	UE B
✓		✓		
			✓	✓
	✓	✓		
	✓			✓
UE A	AS A	IMS A	IMS B	UE B
Step	Direction		Message	IF
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 (V8.10.0), 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 (V8.10.0), 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	
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 (V8.10.0), 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		
			x		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		
2			↵	⇒	INVITE ✓ a P-Charging-Vector header x✓ an 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 (V8.10.0), 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 UPDATE the access-network-charging-info parameter from the P-Charging-Vector						
IUT Role:	IMS B						
References:	TS 124 229 (V8.10.0), 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	
				x		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 ✗ an 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 (V8.10.0), 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 (V8.10.0), 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	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 ✓ 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 (V8.10.0), 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		
	x				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 (V8.10.0), clause 5.4.3.2 ¶91 (after note 15)			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			⇐	⇒	Any response	
2a			⇐		408 response	
2b			⇐		5xx response	

5.7 MGCF tests for IMS-PSTN interconnection

Test Purpose						
Identifier:	TP IMS MGCF_01					
Summary:	MGCF shall send INVITE due to indication of an incoming call					
Clause:	TS 124 229 [1], clause 5.5.3.1.1					
References:	RQ_24.229_5.5.3.1.1			Config Ref:	CF_PSTN	
IUT Role:	MGCF			Test Case:	TC_IMS_MGCF_01	
Entities				Condition		
IMS_A	IUT	PSTN				
✓		✓		IMS A and PSTN with peer-to-peer arrangement		
IMS_A	IUT	PSTN				
Step	Direction				Message	IF
1			⇐	⇒	initial IAM	
2		⇐		⇒	INVITE ✓ a Request URI → Tel URI E.164 Number or (Sip URI E.164 Number with user portion phone) ✓ a Contact header → anyvalue GRUU format ✓ a Supported header ✓ an 100rel value ✓ a P-Asserted-Identity header ✓ a P-Charging-Vector header → an icid-value parameter ✓ a SDP → codec supported curr precondition	

Test Purpose						
Identifier:	TP IMS MGCF_02					
Summary:	MGCF shall send 100 response due to indication of an incoming INVITE					
Clause:	TS 124 229 [1], clause 5.5.3.1.2					
References:	RQ_24.229_5.5.3.1.2			Config Ref:	CF_PSTN	
IUT Role:	MGCF			Test Case:	TC_IMS_MGCF_02	
Entities				Condition		
IMS_A	IUT	PSTN				
✓		✓		IMS A and PSTN with peer-to-peer arrangement		
IMS_A	IUT	PSTN				
Step	Direction				Message	IF
1			⇐	⇒	initial INVITE	
2		⇐		⇒	100 response	

Test Purpose					
Identifier:	TP_IMS_MGCF_03				
Summary:	MGCF shall send 183 response codec found or not required				
Clause:	TS 124 229 [1], clause 5.5.3.1.2				
References:	RQ_24.229_5.5.3.1.2	Config Ref:	CF_PSTN		
IUT Role:	MGCF	Test Case:	TC_IMS_MGCF_03		
Entities			Condition		
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↶		initial INVITE	
2	↶	↵		100 response	
3	↶	↵		183 response ✓ Require header → 100rel value ✓ a P-Charging-Vector header ✓ a term-ioi parameter → the operator identifier of IMS A	

Test Purpose					
Identifier:	TP_IMS_MGCF_05				
Summary:	MGCF shall send UPDATE request				
Clause:	TS 124 229 [1], clause 5.5.3.2.1				
References:	RQ_24.229_5.5.3.2.1	Config Ref:	CF_PSTN		
IUT Role:	MGCF	Test Case:	TC_IMS_MGCF_05		
Entities			Condition		
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↶		200 response for PRACK conditions fulfilled	
2	↶	↵		UPDATE	

Test Purpose					
Identifier:	TP_IMS_MGCF_06				
Summary:	MGCF shall send 180 response due to indication of an ACM/CPG				
Clause:	TS 129 163 [6], clause 7.2.3.1.4, TS 124 229 [1], clause 5.5.3.2.2				
References:	RQ_29.163_7.2.3.1.4	Config Ref:	CF_PSTN		
IUT Role:	MGCF	Test Case:	TC_IMS_MGCF_06		
Entities			Condition		
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1a		↶	↵	ACM → subscriber free	
1b		↶	↵	CPG → ALERTING	
2	↶	↵		180 response	

Test Purpose					
Identifier:	TP_IMS_MGCF_07				
Summary:	MGCF shall send 200 response due to indication of ANM				
Clause:	TS 129 163 [6], clause 7.2.3.1.5, TS 124 229 [1], clause 5.5.3.2.2				
References:	RQ_29.163_7.2.3.1.5	Config Ref:	CF_PSTN		
IUT Role:	MGCF	Test Case:	TC_IMS_MGCF_07		
Entities			Condition		
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1		↶	↵	ANM	
2	↶	↵		200 response	

Test Purpose					
Identifier:	TP_IMS_MGCF_08				
Summary:	MGCF shall send BYE response due to indication of release				
Clause:	TS 129 163 [6], clause 7.2.3.1.8, TS 124 229 [1], clause 5.5.4.1				
References:	RQ_29.163_7.2.3.1.8		Config Ref:	CF_PSTN	
IUT Role:	MGCF		Test Case:	TC_IMS_MGCF_08	
	Entities			Condition	
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1		↵	↵	REL	
2	↵	↵		BYE	

Test Purpose					
Identifier:	TP_IMS_MGCF_09				
Summary:	MGCF shall send 486 response due to indication of release with cause indicator 17				
Clause:	TS 129 163 [6], clause 7.2.3.1.8				
References:	RQ_29.163_7.2.3.1.8		Config Ref:	CF_PSTN	
IUT Role:	MGCF		Test Case:	TC_IMS_MGCF_09	
	Entities			Condition	
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1		↵	↵	REL → cause17	
2	↵	↵		486 response	

Test Purpose					
Identifier:	TP_IMS_MGCF_10				
Summary:	MGCF shall send REL with cause #17 or #34 with Diagnostic due to 486 Busy here				
Clause:	TS 129 163 [6], clause 7.2.3.2.12				
References:	RQ_29.163_7.2.3.2.12		Config Ref:	CF_PSTN	
IUT Role:	MGCF		Test Case:	TC_IMS_MGCF_10	
	Entities			Condition	
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↵		486 response	
2		↵	↵	REL → cause17 or cause34	

Test Purpose					
Identifier:	TP_IMS_MGCF_11				
Summary:	MGCF shall send CPG with a 'remote hold' Generic notification indicator on receipt of HOLD request from IMS				
Clause:	TS 129 163 [6], clause 7.4.10.1				
References:	RQ_29.163_7.4.10.1		Config Ref:	CF_PSTN	
IUT Role:	MGCF		Test Case:	TC_IMS_MGCF_11	
	Entities			Condition	
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	✓		✓	IMS A and PSTN call active	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↵		UPDATE or a target refresh INVITE ✓ a SDP → sendonly	
2		↵	↵	CPG → remote hold	

Test Purpose					
Identifier:	TP IMS MGCF_12				
Summary:	MGCF shall send CPG with a 'remote retrieve' Generic notification indicator on receipt of Resume request from IMS				
Clause:	TS 129 163 [6], clause 7.4.10.1				
References:	RQ_29.163_7.4.10.1	Config Ref:	CF_PSTN		
IUT Role:	MGCF	Test Case:	TC_IMS_MGCF_12		
Entities			Condition		
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	✓		✓	IMS A and PSTN call on hold	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↶		UPDATE or a target refresh INVITE ✓ a SDP → sendrcv	
2		↵	↶	CPG → remote retrieve	

Test Purpose					
Identifier:	TP IMS MGCF_13				
Summary:	MGCF shall send CPG with a 'remote hold' Generic notification indicator on receipt of HOLD request from IMS				
Clause:	TS 129 163 [6], clause 7.4.10.2				
References:	RQ_29.163_7.4.10.2	Config Ref:	CF_PSTN		
IUT Role:	MGCF	Test Case:	TC_IMS_MGCF_13		
Entities			Condition		
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	✓		✓	IMS A and PSTN call active	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1		↵	↶	CPG → remote hold	
2	↵	↶		UPDATE or a target refresh INVITE ✓ a SDP → sendonly	

Test Purpose					
Identifier:	TP IMS MGCF_14				
Summary:	MGCF shall send CPG with a 'remote retrieve' Generic notification indicator on receipt of Resume request from IMS				
Clause:	TS 129 163 [6], clause 7.4.10.2				
References:	RQ_29.163_7.4.10.2	Config Ref:	CF_PSTN		
IUT Role:	MGCF	Test Case:	TC_IMS_MGCF_14		
Entities			Condition		
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	✓		✓	IMS A and PSTN call on hold	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1		↵	↶	CPG → remote retrieve	
2	↵	↶		UPDATE or a target refresh INVITE ✓ a SDP → sendonly	

Test Purpose					
Identifier:	TP_IMS_MGCF_15				
Summary:	MGCF shall send ACM/CPG due to indication of a 180 response				
Clause:	TS 129 163 [6], clause 7.2.3.2.4 and 7.2.3.2.6				
References:	RQ_29.163_7.2.3.2.4_and_6	Config Ref:		CF_PSTN	
IUT Role:	MGCF	Test Case:		TC_IMS_MGCF_15	
	Entities			Condition	
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↶		180 response	
2		↵	↶	ACM → subscriber free or sends a CPG → ALERTING	

Test Purpose					
Identifier:	TP_IMS_MGCF_16				
Summary:	MGCF shall send ANM due to indication of a 200 response				
Clause:	TS 129 163 [6], clause 7.2.3.2.8				
References:	RQ_29.163_7.2.3.2.8	Config Ref:		CF_PSTN	
IUT Role:	MGCF	Test Case:		TC_IMS_MGCF_16	
	Entities			Condition	
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↶		200 response	
2		↵	↶	ANM	

Test Purpose					
Identifier:	TP_IMS_MGCF_17				
Summary:	MGCF shall send REL due to indication of a BYE				
Clause:	TS 129 163 [6], clause 7.2.3.2.13				
References:	RQ_29.163_7.2.3.2.13	Config Ref:		CF_PSTN	
IUT Role:	MGCF	Test Case:		TC_IMS_MGCF_17	
	Entities			Condition	
	IMS_A	IUT	PSTN		
	✓		✓	IMS A and PSTN with peer-to-peer arrangement	
	IMS_A	IUT	PSTN		
Step	Direction			Message	IF
1	↵	↶		BYE	
2		↵	↶	REL	

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_186011v030101p0.zip which accompanies the present document. The raw text files has been converted to a symbolic table format to allow better readability.

Annex B (normative): IMS NNI Interoperability Test Configurations

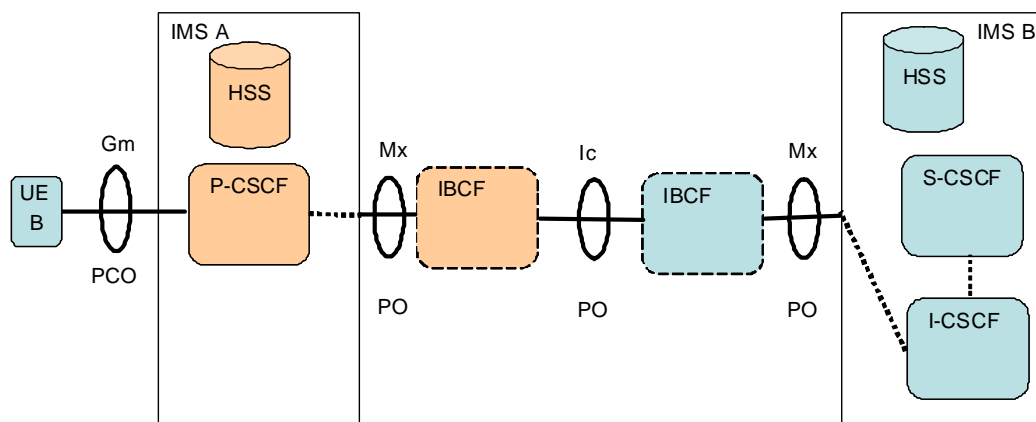
IMS NNI interoperability test configuration identifiers have been composed using on the following abbreviations

- 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
- PSTN: One user is located in the PSTN
- IPTV: Only one UE, AS for IPTV present
- CONF: Two UEs, AS for Conference present

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

Roaming Registration

CF_ROAM_REG



Precondition:

Different network operators performing origination and termination, UE_B roaming in visited network A (ROAM), UE_B not yet registered (REG), neither UE_A nor AS involved, IBCF is involved but no topology hiding performed

Test configuration for:

Registration requests and responses from UE_B

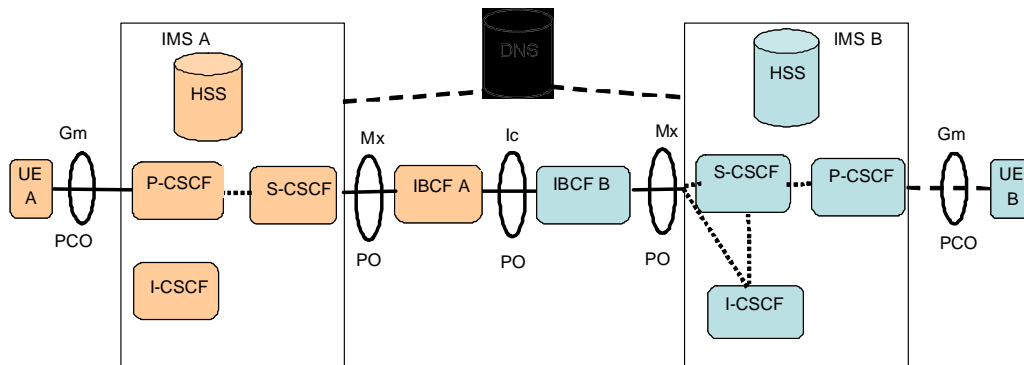
Example:

REGISTER prior to IMS VoIP voice call from UE_B

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 is involved, topology hiding may apply

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)

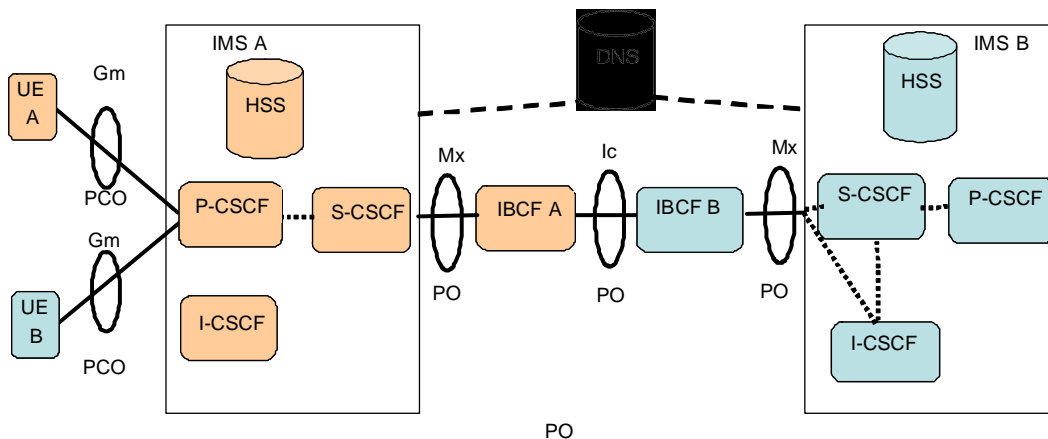
Example:

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 is involved, topology hiding may apply

Test configuration for:

Requests and responses between UE_B and UE_A in call (CALL) and messaging scenarios

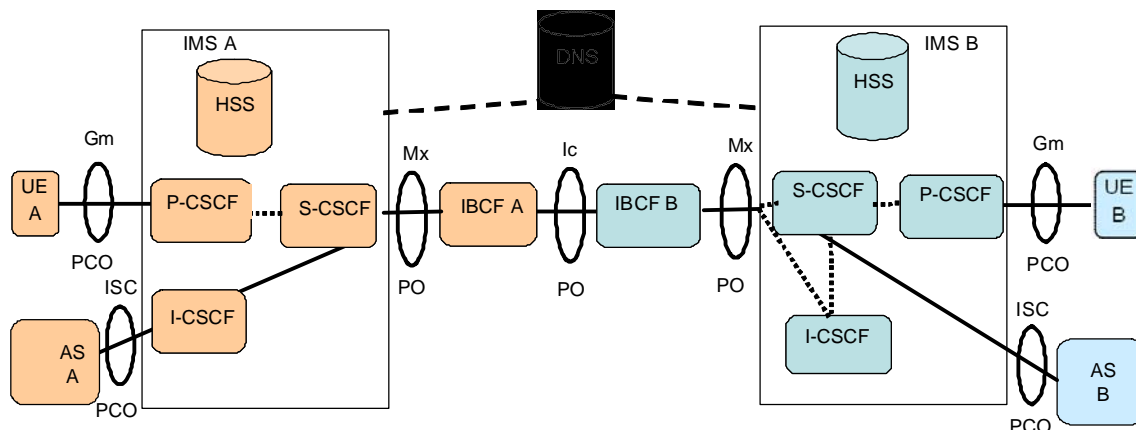
Example:

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, AS for UE_A and UE_B (AS), IBCF is involved, topology hiding may apply

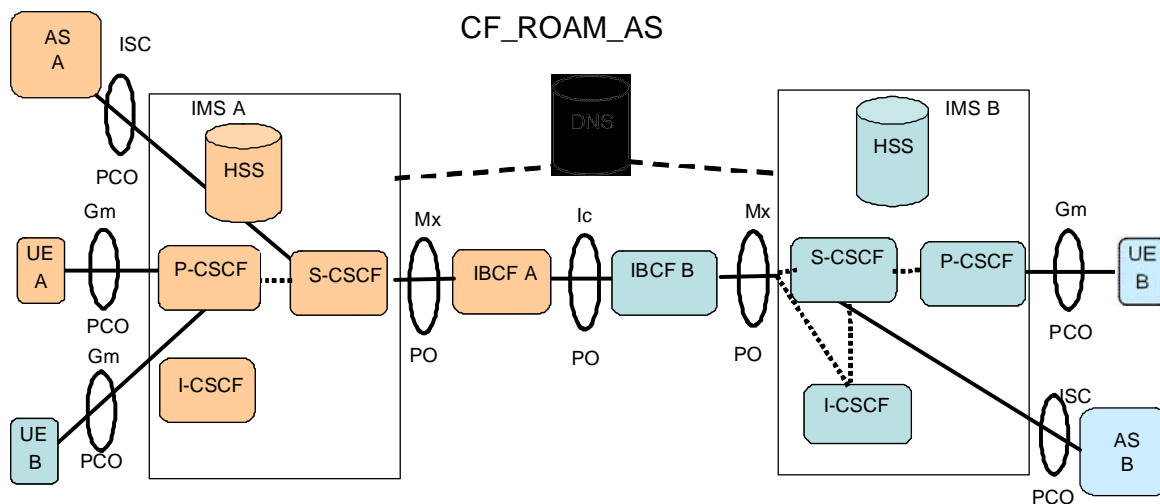
Test configuration for:

Requests and responses between ASes 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



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 is involved, topology hiding may apply

Test configuration for:

Requests and responses between AS_B and UEs

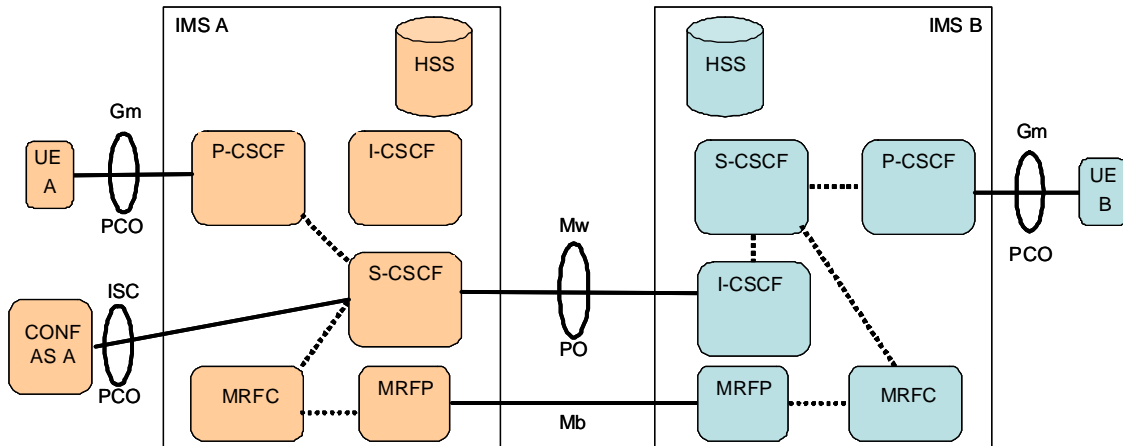
Unsuccessful initial requests and responses from UE_A (when UE_B and AS_B are not available)

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

CF_INT_CONF_CALL



Precondition:

Different network operators performing origination and termination, both UEs or only UE A in home networks (INT), both UE's registered, CONF AS is involved in IMS A, IMS A and IMS B both include MRFC and MRFP

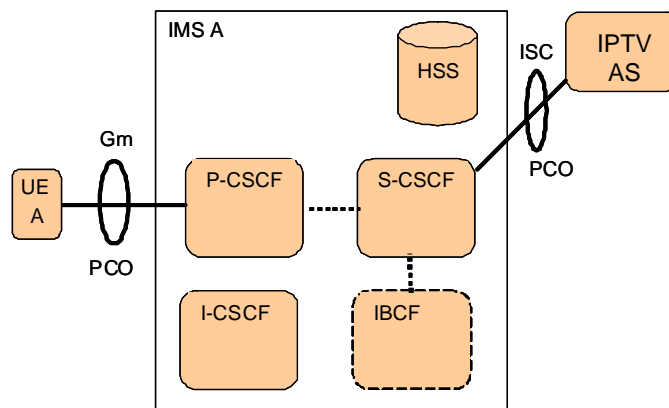
Test configuration for:

Requests and responses between UE_A and UE_B in an Ad-Hoc Conference Call (CONF_CALL)

Example:

Initial INVITE in from UE_A to initiate an Ad-Hoc Conference call in IMS A, and subsequent invitation to UE_B to join (via REFER method from UE_A)

Figure B.6: CF_INT_CONF_CALL

IPTV
CF_IPTV

Precondition:

UE A registered in home network, IPTV-AS is involved

Test configuration for:

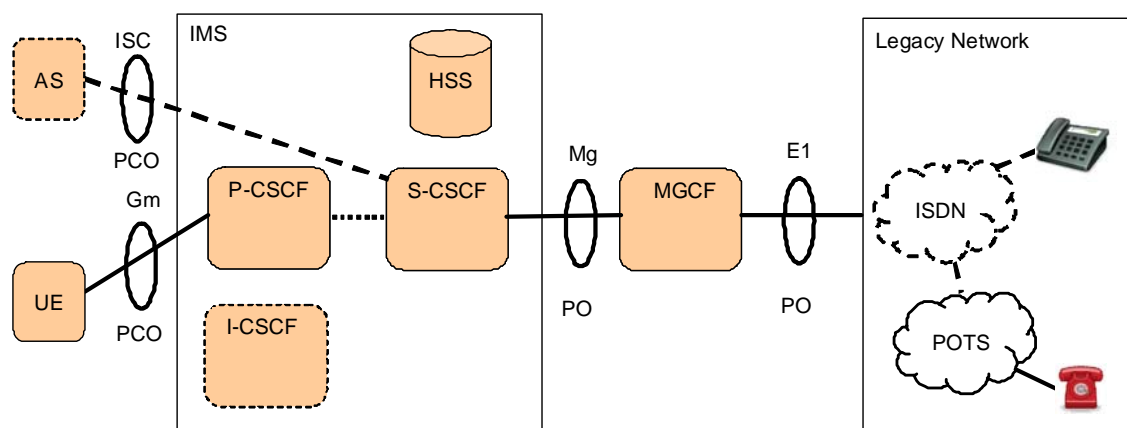
Requests and responses between UE_A and AS_A

Example:

Initial INVITE from UE_A to AS_A to initiate a IPTV Broadcast session.

Figure B.7: CF_IPTV

CF_PSTN



Precondition:

Single network with UE in home networks and registered, AS and I-CSCF may be involved

Test configuration for:

Requests and responses between IUE and POTS or ISDN phone

Example:

Initial INVITE from UE to POTS phone

Figure B.8: CF_PSTN

History

Document history		
V1.0.0	April 2008	Publication
V1.1.1	March 2009	Publication
V2.1.1	February 2009	Publication
V2.2.1	March 2009	Publication
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V3.1.1	June 2011	Publication