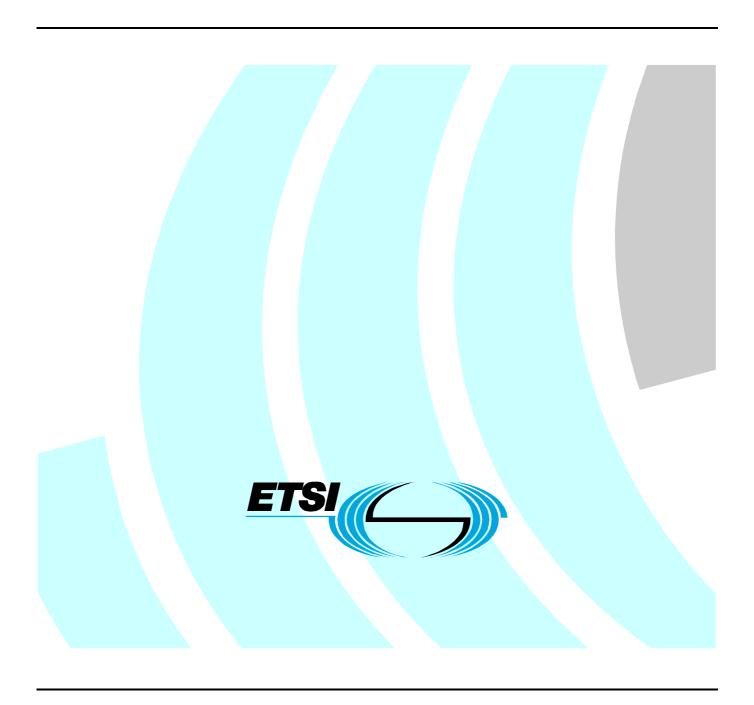# ETSI TS 186 016-2 V2.1.1 (2009-02)

Technical Specification

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Closed User Group (CUG); Part 2: Test Suite Structure and Test Purposes (TSS&TP)

ETSI

Reference

RTS/TISPAN-06050-2-NGN-R2

Keywords

CUG, IMS, testing, TSS&TP

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document is part 2 of a multi-part deliverable covering PSTN/ISDN simulation services; Closed User Group (CUG), as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS)";

Part 2: "Test Suite Structure and Test Purposes (TSS&TP)";

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

1 Scope

The present document specifies the test suite structure and test purposes of the Closed User Group (CUG) service, based on stage three of the IMS closed user group (CUG) simulation services. Within the Next Generation Network (NGN) the stage 3 description is specified using the IP-Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP).

2 References

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

- For a specific reference, subsequent revisions do not apply.

- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:

  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;

  - for informative references.

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

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

2.1 Normative references

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

[1] ETSI TS 183 054: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Protocol specification Closed User Group (CUG)".

[2] ETSI TS 186 016-1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Closed User Group (CUG); Protocol Implementation Conformance Statement (PICS)".

[3] ETSI TS 181 002: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Multimedia Telephony with PSTN/ISDN simulation services".

[4] IETF RFC 3261: "SIP: Session Initiation Protocol".

[5] ETSI ES 283 027: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Endorsement of the SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks".

2.2 Informative references

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

Not applicable.

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in TS 181 002 [3] and the following apply:

escaped character: See RFC 3261 [4].

NOTE: This may contain additional information.

3.2   Abbreviations

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

ACK	ACKnowledgement
ACM	Address Complete Message
ANM	ANswer Message
AS	Application Server
CDIV	Communication Diversion Services
CFU	Communication Forwarding Unconditional
CONF	CONFerence calling
CUG	Closed User Group
ECT	Explicit Call Transfer
HOLD	communication HOLD
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISDN	Integrated Service Data Network
ISUP	ISDN User Part
MCID	Malicious Communication IDentification
NGN	Next Generation Network
OAI	Outgoing Access, Implicit outgoing access for all communications
OCB	Outgoing Communication Barring (OCB)
PIXIT	Protocol Implementation eXtra Information for Testing
PSTN	Public Switched Telephone Network
REL	RELease message
RLC	ReLease Complete message
SDP	Session Description Protocol
SIP	Session Initiation Protocol
SS	Supplementary Services
SUB	Subaddressing
SUT	System Under Test
TP	Test Purposes
TSS	Test Suite Structure
UA	User Agent
UE	User Equipment
XML	eXtensible Markup Language

4   Test Suite Structure (TSS)

CUG			
	originating_UE		CUG_U01_xxx
	originating_AS		CUG_N01_xxx
	terminating_AS		CUG_N02_xxx
	interaction	CONF	CUG_N03_xxx
		CDIV	CUG_N04_xxx
		ECT	CUG_N05_xxx
SIP-ISUP			
	SS	CUG	TP516xxx
ISUP-SIP			
	SS	CUG	TP608xxx

5   Test Purposes (TP)

5.1   Introduction

For each test requirement a TP is defined.

5.1.1   TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 1).

Table 1: TP identifier naming convention scheme

Identifier: **<ss>_<iut><group>_<nnn>**

  <ss>   =   supplementary service: e.g. "CUG"

  <iut>   =   type of IUT: U   User – equipment
                                   N   Network

  <group>   =   group   2 digit field representing group reference according to TSS

  <nnn>   =   sequential number   (001-999)

5.1.2   Test strategy

As the base standard TS 183 054 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification TS 186 016-1 [2]. The criteria applied include the following:

- Whether or not a test case can be built from the TP is not considered.

5.2   Test Purposes for Closed User Group (CUG)

5.2.1   TPs at the originating UA

TSS	TP	SUB reference	Selection expression
CUG/originating_UE	CUG_U01_001	clause 4.5.2.1	

Test purpose

Explicit request of CUG service.

The originating user requests explicitly the CUG service by including in the initial INVITE an xml CUGrequestType containing the preferred CUG and an outgoing access request.

Preconditions:

SIP header values:

INVITE:
```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>
```

Comments:

UA C				Test equipment
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_UE	CUG_U01_002	clause 4.5.2.1	

Test purpose

Explicit request of CUG service.

The originating user requests explicitly the CUG service by including in the initial INVITE an xml CUGrequestType does not contain the preferred CUG and an outgoing access request.

Preconditions:

SIP header values:

INVITE:
```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>
```

Comments:

UA C				Test equipment
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_UE	CUG_U01_003	clause 4.5.2.1	

Test purpose
Explicit request of CUG service. The originating user requests explicitly the CUG service by including in the initial INVITE an xml CUGrequestType containing the preferred CUG and an outgoing access request.

Preconditions:

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

Comments:

UA C			Test equipment
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 Ringing	←	←	180 Ringing
200 OK INVITE	←	←	200 OK INVITE
ACK	→	→	ACK
	Communication		
BYE	→	→	BYE
200 OK BYE	←	←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_UE	CUG_U01_004	clause 4.5.2.1	

Test purpose
Explicit request of CUG service. The originating user requests explicitly the CUG service by including in the initial INVITE an xml CUGrequestType does not contain the preferred CUG and an outgoing access request.

Preconditions:

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

Comments:

UA C			Test equipment
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 Ringing	←	←	180 Ringing
200 OK INVITE	←	←	200 OK INVITE
ACK	→	→	ACK
	Communication		
BYE	→	→	BYE
200 OK BYE	←	←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_UE	CUG_U01_005	clause 4.5.2.1	
Test purpose			
Implicit request of CUG service. The originating user with CUG subscription requests the CUG service without including a xml CUGrequestType in the initial INVITE.			
Preconditions:			
SIP header values: INVITE:			
Comments:			

UA C				Test equipment
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.2.2   Test Purposes at the Application Server of the originating User

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_001	clause 4.5.2.4	PICS 1/1
Test purpose			
CUG without preference: INVITE with CUG index and no outgoingAccessRequest, successful. In case of subscription "CUG without preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and without outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).			
Preconditions: CUG without preference			

SIP header values:
INVITE:
```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>

INVITE:
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_002	clause 4.5.2.4	PICS 1/2

Test purpose

CUG+OAE without preference: INVITE with CUG index and no outgoingAccessRequest, successful.
In case of subscription "CUG and Outgoing access, explicit request required without preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and without outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG+OAE without preference

SIP header values:
INVITE:
```
<cug>
   <cugCallOperation>
       <outgoingAccessRequest>FALSE</outgoingAccessRequest>
       <cugIndex>[PIXIT]</cugIndex>
   </cugCallOperation>
</cug>
```

INVITE:
```
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_003	clause 4.5.2.4	PICS 1/3

Test purpose
CUG+OAI without preference: INVITE with CUG index and no outgoingAccessRequest, successful.
In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications without preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and without outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG+OAI without preference

SIP header values:
INVITE:
<cug>
<cugCallOperation>
<outgoingAccessRequest>FALSE</outgoingAccessRequest>
<cugIndex>[PIXIT]</cugIndex>
</cugCallOperation>
</cug>
INVITE:
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
<cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:				
UA C		**SUT**		**UA S**
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_004	clause 4.5.2.4	PICS 1/4

Test purpose

CUG with preference: INVITE with CUG index and no outgoingAccessRequest, successful.

In case of subscription "CUG with preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and without outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG with preference

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>
```

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_005	clause 4.5.2.4	PICS 1/5

Test purpose

CUG+OAE with preference: INVITE with CUG index and no outgoingAccessRequest, successful.

In case of subscription "CUG and Outgoing access, explicit request required with preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and without outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG+OAE with prefer*ence*

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>
```

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	➔		➔	INVITE 2
100 Trying	⬅		⬅	100 Trying
180 Ringing	⬅		⬅	180 Ringing
200 OK INVITE	⬅		⬅	200 OK INVITE
ACK	➔		➔	ACK
		Communication		
BYE	➔		➔	BYE
200 OK BYE	⬅		⬅	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_006	clause 4.5.2.4	PICS 1/6

Test purpose
CUG+OAI with preference: INVITE with CUG index and no outgoingAccessRequest, successful.   In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications with preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and without outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG+OAI with preference

SIP header values:

INVITE:
 <cug>
    <cugCallOperation>
       <outgoingAccessRequest>FALSE</outgoingAccessRequest>
       <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
 </cug>
 	
 INVITE:
 <cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
 </cug>

Comments:			
UA C	**SUT**		**UA S**
INVITE 1	→	→	INVITE 2
100 Trying	←	←	100 Trying
180 Ringing	←	←	180 Ringing
200 OK INVITE	←	←	200 OK INVITE
ACK	→	→	ACK
	Communication		
BYE	→	→	BYE
200 OK BYE	←	←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_007	clause 4.5.2.4	

Test purpose
No CUG: INVITE with CUG index and no outgoingAccessRequest, unsuccessful.   In case of subscription "No CUG", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and without outgoingAccessRequest is not successful. The Application Server sends a 403 Forbidden.

Preconditions: No CUG subscription

SIP header values:

INVITE:
 <cug>
    <cugCallOperation>
       <outgoingAccessRequest>FALSE</outgoingAccessRequest>
       <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
 </cug>
 	
 403 Forbidden:

Comments:		
UA C	**SUT**	**UA S**
INVITE	→	
403 Forbidden	←	
ACK	→	

TSS CUG/originating_AS	TP CUG_N01_008	SUB reference clause 4.5.2.4	Selection expression PICS 1/1

Test purpose

CUG without preference: INVITE with CUG index and outgoingAccessRequest, successful.

In case of subscription "CUG without preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG without preference

SIP header values:

INVITE:
```
<cug>
   <cugCallOperation>
       <outgoingAccessRequest>TRUE</outgoingAccessRequest>
       <cugIndex>[PIXIT]</cugIndex>
   </cugCallOperation>
</cug>
```

INVITE:
```
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_009	clause 4.5.2.4	PICS 1/2

Test purpose
CUG+OAE without preference: INVITE with CUG index and outgoingAccessRequest, successful.
In case of subscription "CUG and Outgoing access, explicit request required without preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG+OAE without preference

SIP header values:
INVITE:
<cug>
<cugCallOperation>
<outgoingAccessRequest>TRUE</outgoingAccessRequest>
<cugIndex>[PIXIT]</cugIndex>
</cugCallOperation>
</cug>
INVITE:
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
<cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments:				
UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_010	clause 4.5.2.4	PICS 1/3

Test purpose

CUG+OAI without preference: INVITE with CUG index and outgoingAccessRequest, successful.
In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications without preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG+OAI without preference

SIP header values:

INVITE:
```
<cug>
   <cugCallOperation>
       <outgoingAccessRequest>TRUE</outgoingAccessRequest>
       <cugIndex>[PIXIT]</cugIndex>
   </cugCallOperation>
</cug>
```

INVITE:
```
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_011	clause 4.5.2.4	PICS 1/4

Test purpose

CUG with preference: INVITE with CUG index and outgoingAccessRequest, successful.

In case of subscription "CUG with preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG with preference

SIP header values:

INVITE:

```
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[PIXIT]</cugIndex>
   </cugCallOperation>
</cug>
```

INVITE:

```
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_012	clause 4.5.2.4	PICS 1/5

Test purpose

CUG+OAE with preference: INVITE with CUG index and outgoingAccessRequest, successful.

In case of subscription "CUG and Outgoing access, explicit request required with preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG+OAE with preference

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>
```

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_013	clause 4.5.2.4	PICS 1/6

Test purpose

CUG+OAI with preference: INVITE with CUG index and outgoingAccessRequest, successful.
In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications with preference", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG+OAI with preference

SIP header values:

INVITE 1:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>
```

INVITE 2:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_014	clause 4.5.2.4	

Test purpose

No CUG: INVITE with CUG index and outgoingAccessRequest, unsuccessful.
In case of subscription "No CUG", ensure that the validation check for the CUG request contained in an INVITE with CUGIndex and outgoingAccessRequest is not successful. The Application Server sends a 403 Forbidden.

Preconditions: No CUG subscription

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
        <cugIndex>[PIXIT]</cugIndex>
    </cugCallOperation>
</cug>
```

403 Forbidden:

Comments:

UA C		SUT	UA S
INVITE	→		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_015	clause 4.5.2.4	PICS 1/1
Test purpose			
CUG without preference: INVITE without CUG index and no outgoingAccessRequest, unsuccessful. In case of subscription "CUG without preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and *without* outgoingAccessRequest is successful. The Application Server sends a 403 Forbidden.			
Preconditions: CUG without preference			

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
     <outgoingAccessRequest>FALSE</outgoingAccessRequest>
   </cugCallOperation>
</cug>
 	
403 Forbidden:			

Comments: **UA C** **SUT** **UA S** INVITE → 403 Forbidden ← ACK →			

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_016	clause 4.5.2.4	PICS 1/2
Test purpose			
CUG+OAE without preference: INVITE without CUG index and no outgoingAccessRequest, unsuccessful. In case of subscription "CUG and Outgoing access, explicit request required without preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and *without* outgoingAccessRequest is successful. The Application Server sends a 403 Forbidden.			
Preconditions: CUG+OAE without preference			

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
     <outgoingAccessRequest> FALSE</outgoingAccessRequest>
   </cugCallOperation>
</cug>
 	
403 Forbidden:			

Comments: **UA C** **SUT** **UA S** INVITE → 403 Forbidden ← ACK →			

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_017	clause 4.5.2.4	PICS 1/3

Test purpose

CUG+OAI without preference: INVITE without CUG index and no outgoingAccessRequest, no CUG call.
In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications without preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and *without* outgoingAccessRequest is successful. The sent INVITE does not contain the cugInterlockBinaryCode, the networkIndicator and cugCommunicationIndicator.

Preconditions: CUG+OAI without preference

SIP header values:

INVITE 1:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest> FALSE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

INVITE 2:
No <cug> XML attachment

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_018	clause 4.5.2.4	PICS 1/4

Test purpose

CUG with preference: INVITE without CUG index and no outgoingAccessRequest, successful.

In case of subscription "CUG with preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and *without* outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (preferential CUG PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG with preference

SIP header values:

INVITE:

<cug>
   <cugCallOperation>
      <outgoingAccessRequest> FALSE</outgoingAccessRequest>
   </cugCallOperation>
</cug>

INVITE:

<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_019	clause 4.5.2.4	PICS 1/5

Test purpose

CUG+OAE with preference: INVITE without CUG index and no outgoingAccessRequest, successful.

In case of subscription "CUG and Outgoing access, explicit request required with preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and *without* outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (preferential CUG PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG+OAE with preference

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest> FALSE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_020	clause 4.5.2.4	PICS 1/6

Test purpose

CUG+OAI with preference: INVITE without CUG index and no outgoingAccessRequest, successful.
In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications with preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and *without* outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access).

Preconditions: CUG+OAI with preference

SIP header values:
INVITE:
```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest> FALSE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

INVITE:
```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
or
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_021	clause 4.5.2.4	

Test purpose

No CUG: INVITE without CUG index and no outgoingAccessRequest, unsuccessful.
In case of subscription "No CUG", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and *without* outgoingAccessRequest is not successful. The Application Server sends a 403 Forbidden.

Preconditions: No CUG subscription

SIP header values:
INVITE:
```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest> FALSE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

403 Forbidden:

Comments:

UA C		SUT	UA S
INVITE	→		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_022	clause 4.5.2.4	PICS 1/1

Test purpose

CUG without preference: INVITE without CUG index and outgoingAccessRequest, unsuccessful.

In case of subscription "CUG without preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The Application Server sends a 403 Forbidden.

Preconditions: CUG without preference

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

403 Forbidden:

Comments:

UA C		SUT	UA S
INVITE	→		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_023	clause 4.5.2.4	PICS 1/2

Test purpose

CUG+OAE without preference: INVITE without CUG index and outgoingAccessRequest, no CUG call.

In case of subscription "CUG and Outgoing access, explicit request required without preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The Application Server sends a 403 Forbidden.

Preconditions: CUG+OAE without preference

SIP header values:

INVITE 1:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

INVITE 2:

No <cug> XML attachment

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_024	clause 4.5.2.4	PICS 1/3

Test purpose

CUG+OAI without preference: INVITE without CUG index and outgoingAccessRequest, no CUG call.
In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications without preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The sent INVITE does not contain the cugInterlockBinaryCode, the networkIndicator and cugCommunicationIndicator.

Preconditions: CUG+OAI without preference

SIP header values:

INVITE 1:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

INVITE 2:
No <cug> XML attachment

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_025	clause 4.5.2.4	PICS 1/4

Test purpose

CUG with preference: INVITE without CUG index and outgoingAccessRequest, unsuccessful.
In case of subscription "CUG with preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The Application Server sends a 403 Forbidden.

Preconditions: CUG with preference

SIP header values:

INVITE:

```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

403 Forbidden:

Comments:

UA C		SUT	UA S
INVITE	→		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_026	clause 4.5.2.4	PICS 1/5
Test purpose			
CUG+OAE with preference: INVITE without CUG index and outgoingAccessRequest, no CUG call. In case of subscription "CUG and Outgoing access, explicit request required with preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The sent INVITE does not contain the cugInterlockBinaryCode, the networkIndicator and cugCommunicationIndicator.			
Preconditions: CUG+OAE with preference			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> </cugCallOperation> </cug> INVITE 2: No <cug> XML attachment			

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_027	clause 4.5.2.4	PICS 1/6

Test purpose
CUG+OAI with preference: INVITE without CUG index and outgoingAccessRequest, successful.
In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications with preference", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG+OAI with preference

SIP header values:
INVITE:
<cug>
<cugCallOperation>
<outgoingAccessRequest>TRUE</outgoingAccessRequest>
</cugCallOperation>
</cug>
INVITE:
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
<cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments:
UA C   **SUT**   **UA S**
INVITE 1   ➜   ➜   INVITE 2
100 Trying   ⬅   ⬅   100 Trying
180 Ringing   ⬅   ⬅   180 Ringing
200 OK INVITE   ⬅   ⬅   200 OK INVITE
ACK   ➜   ➜   ACK
Communication
BYE   ➜   ➜   BYE
200 OK BYE   ⬅   ⬅   200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_028	clause 4.5.2.4	

Test purpose
No CUG: INVITE without CUG index and outgoingAccessRequest, unsuccessful.
In case of subscription "No CUG", ensure that the validation check for the CUG request contained in an INVITE *without* CUGIndex and outgoingAccessRequest is not successful. The Application Server sends a 403 Forbidden.

Preconditions: No CUG subscription

SIP header values:
INVITE:
<cug>
<cugCallOperation>
<outgoingAccessRequest>TRUE</outgoingAccessRequest>
</cugCallOperation>
</cug>
403 Forbidden:

Comments:
UA C   **SUT**   **UA S**
INVITE   ➜
403 Forbidden   ⬅
ACK   ➜

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_022	clause 4.5.2.4	PICS 1/1

Test purpose

CUG without preference: INVITE for Non-CUG communication, unsuccessful.

In case of subscription "CUG without preference", ensure that the validation check for the CUG request in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The Application Server sends a 403 Forbidden.

Preconditions: CUG without preference

SIP header values:

INVITE:

No <cug> XML attachment

403 Forbidden:

Comments:			
UA C		**SUT**	**UA S**
INVITE	→		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_023	clause 4.5.2.4	PICS 1/2

Test purpose

CUG+OAE without preference: INVITE for Non-CUG communication, unsuccessful.

In case of subscription "CUG and Outgoing access, explicit request required without preference", ensure that the validation check for a non CUG request in an INVITE is successful. The Application Server sends a 403 Forbidden.

Preconditions: CUG+OAE without preference

SIP header values:

INVITE 1:

No <cug> XML attachment

403 Forbidden:

Comments:			
UA C		**SUT**	**UA S**
INVITE	→		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_024	clause 4.5.2.4	PICS 1/3

Test purpose

CUG+OAI without preference: INVITE for Non-CUG communication, no CUG call.

In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications without preference", ensure that the validation check for a non CUG request in an INVITE is successful. The sent INVITE does not contain the cugInterlockBinaryCode, the networkIndicator and cugCommunicationIndicator.

Preconditions: CUG+OAI without preference

SIP header values:

INVITE 1:

No <cug> XML attachment

INVITE 2:

No <cug> XML attachment

Comments:				
UA C		**SUT**		**UA S**
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_025	clause 4.5.2.4	PICS 1/4

Test purpose

CUG with preference: INVITE for Non-CUG communication, successful.

In case of subscription "CUG with preference", ensure that the validation check for a non CUG request in an INVITE *without* CUGIndex and outgoingAccessRequest is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG with preference

SIP header values:

INVITE 1:
No <cug> XML attachment

INVITE 2:
```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_026	clause 4.5.2.4	PICS 1/5

Test purpose

CUG+OAE with preference: INVITE for Non-CUG communication, successful.

In case of subscription "CUG and Outgoing access, explicit request required with preference", ensure that the validation check for a non CUG request in an INVITE is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG+OAE with preference

SIP header values:

INVITE:
No <cug> XML attachment

INVITE 2:
```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_027	clause 4.5.2.4	PICS 1/6

Test purpose

CUG+OAI with preference: INVITE for Non-CUG communication, successful.

In case of subscription "CUG and Outgoing access, implicit outgoing access for all communications with preference", ensure that the validation check for a non CUG request in an INVITE is successful. The sent INVITE contains the cugInterlockBinaryCode (PIXIT), the networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (outgoing access allowed).

Preconditions: CUG+OAI with preference

SIP header values:

INVITE:

No <cug> XML attachment

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_028	clause 4.5.2.4	

Test purpose

No CUG: INVITE for Non-CUG communication, unsuccessful.

In case of subscription "No CUG", ensure that the validation check for a non CUG request in an INVITE is not successful. The sent INVITE does not contain the cugInterlockBinaryCode, the networkIndicator and cugCommunicationIndicator.

Preconditions: No CUG subscription

SIP header values:

INVITE:

No <cug> XML attachment

INVITE 2:

No <cug> XML attachment

Comments:

UA C		SUT		UA S
INVITE 1	→		→	INVITE 2
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_029	clause 4.5.2.4	

Test purpose

Outgoing communications barring applies, the call is rejected.

Ensure that a CUG request and outgoing communications barring applies is rejected with a 603 Decline final response.

Preconditions: CUG without preference

SIP header values:

INVITE:

<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[PIXIT]</cugIndex>
   </cugCallOperation>
</cug>

603 Decline:

Comments:			
UA C		**SUT**	**UA S**
INVITE	→		
603 Decline	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/originating_AS	CUG_N01_030	clause 4.5.2.4	

Test purpose

Outgoing communications barring applies, a non CUG call is delivered to the terminating user.

Ensure that a CUG request and outgoing communications barring applies is delivered toward the terminating user.

Preconditions: CUG+OAI without preference

SIP header values:

INVITE:

<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[PIXIT]</cugIndex>
   </cugCallOperation>
</cug>

603 Decline:

Comments:			
UA C		**SUT**	**UA S**
INVITE	→		
603 Decline	←		
ACK	→		

5.2.3   Actions at the AS of the terminating User

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_001	clause 4.5.2.10	

Test purpose
CUG call -OA to a CUG user, -IA, -ICB in the same CUG.
Ensure that call setup is successful if the originating user is a CUG user outgoing access not allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access not allowed and incoming call is not barred. Both users are in the same CUG.

Preconditions: Terminating user is a CUG user incoming access not allowed incoming call not barred.

SIP header values:
INVITE:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_002	clause 4.5.2.10	

Test purpose
CUG call -OA to a CUG user, -IA, +ICB in the same CUG.
Ensure that call setup is not successful if the originating user is a CUG user outgoing access not allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access not allowed and incoming call is barred. Both users are in the same CUG. The call setup is rejected with a 603 Decline final response.

Preconditions: Terminating user is a CUG user incoming access not allowed incoming call barred.

SIP header values:
INVITE:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:

UA C		SUT	UA S
INVITE	→		
100 Trying	←		
603 Decline	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_003	clause 4.5.2.10	

Test purpose

CUG call -OA to a CUG user, +IA, -ICB in the same CUG.

Ensure that call setup is successful if the originating user is a CUG user outgoing access not allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access allowed and incoming call is not barred. Both users are in the same CUG.

Preconditions: Terminating user is a CUG user incoming access allowed incoming call not barred.

SIP header values:

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_004	clause 4.5.2.10	

Test purpose

CUG call -OA to a CUG user, +IA, +ICB in the same CUG.

Ensure that call setup is not successful if the originating user is a CUG user outgoing access not allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access allowed and incoming call is barred. Both users are in the same CUG. The call setup is rejected with a 603 Decline final response.

Preconditions: Terminating user is a CUG user incoming access allowed and incoming call barred.

SIP header values:

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT	UA S
INVITE	→		
100 Trying	←		
603 Decline	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_005	clause 4.5.2.10	

Test purpose
CUG call -OA to a non CUG user.
Ensure that call setup is not successful if the originating user is a CUG user outgoing access not allowed represented by a XML cug instance in the received INVITE and the terminating user is not a CUG user. The call setup is rejected with a 403 Forbidden final response.

Preconditions: Terminating user is a non CUG user.

SIP header values:
INVITE:
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
<cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:			
UA C		SUT	UA S
INVITE	→		
100 Trying	←		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_006	clause 4.5.2.10	

Test purpose
CUG call -OA to a CUG user, -IA not in the same CUG.
Ensure that call setup is not successful if the originating user is a CUG user outgoing access not allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access not allowed. Both users are not in the same CUG. The call setup is rejected with a 403 Forbidden final response.

Preconditions: Terminating user is a CUG user incoming access not allowed.

SIP header values:
INVITE:
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
<cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:			
UA C		SUT	UA S
INVITE	→		
100 Trying	←		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_007	clause 4.5.2.10	
Test purpose			
CUG call -OA to a CUG user, +IA not in the same CUG. Ensure that call setup is successful if the originating user is a CUG user outgoing access not allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access allowed and. Both users are not in the same CUG. The call setup is rejected with a 403 Forbidden final response.			
Preconditions: Terminating user is a CUG user incoming access allowed.			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			

Comments:

UA C		SUT	UA S
INVITE	→		
100 Trying	←		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_008	clause 4.5.2.10	
Test purpose			
CUG call +OA to a CUG user, -IA, -ICB in the same CUG. Ensure that call setup is successful if the originating user is a CUG user outgoing access allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access not allowed and incoming call is not barred. Both users are in the same CUG.			
Preconditions: Terminating user is a CUG user incoming access not allowed incoming call not barred.			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>			

Comments:

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_009	clause 4.5.2.10	

Test purpose
CUG call +OA to a CUG user, -IA, +ICB in the same CUG.
Ensure that call setup is successful if the originating user is a CUG user outgoing access allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access not allowed and incoming call is barred. Both users are in the same CUG. The call setup is rejected with a 603 Decline final response.

Preconditions: Terminating user is a CUG user incoming access, allowed incoming call barred.

SIP header values:
INVITE:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments: UA C		SUT	UA S
INVITE	→		
100 Trying	←		
603 Decline	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_010	clause 4.5.2.10	

Test purpose
CUG call +OA to a CUG user, +IA, -ICB in the same CUG.
Ensure that call setup is successful if the originating user is a CUG user outgoing access allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access allowed and incoming call is not barred. Both users are in the same CUG.

Preconditions: Terminating user is a CUG user incoming access allowed incoming call not barred.

SIP header values:
INVITE:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments: UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_011	clause 4.5.2.10	

Test purpose
CUG call+-OA to a CUG user, +IA, +ICB in the same CUG.
Ensure that call setup is successful if the originating user is a CUG user outgoing access allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access allowed and incoming call is barred. Both users are in the same CUG.

Preconditions: Terminating user is a CUG user incoming access allowed incoming call barred.

SIP header values:
INVITE:
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
<cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments:

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_012	clause 4.5.2.10	

Test purpose
CUG call +OA to a non CUG user.
Ensure that call setup is successful on a non CUG call basis, if the originating user is a CUG user outgoing access allowed represented by a XML cug instance in the received INVITE and the terminating user is not in CUG.

Preconditions: Terminating user is a non CUG user

SIP header values:
INVITE:
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
<cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments:

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_013	clause 4.5.2.10	

Test purpose

CUG call +OA to a CUG user, -IA not in the same CUG.

Ensure that call setup is not successful if the originating user is a CUG user outgoing access allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access not allowed. Both users are not in the same CUG. The call setup is rejected with a 403 Forbidden final response.

Preconditions: Terminating user is a CUG user incoming access not allowed.

SIP header values:

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT	UA S
INVITE	→		
100 Trying	←		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_014	clause 4.5.2.10	

Test purpose

CUG call +OA to a CUG user, +IA not in the same CUG.

Ensure that call setup is successful if the originating user is a CUG user outgoing access allowed represented by a XML cug instance in the received INVITE and the terminating user is incoming access allowed and. Both users are not in the same CUG.

Preconditions: Terminating user is a CUG user incoming access allowed.

SIP header values:

INVITE:

```
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
```

Comments:

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_015	clause 4.5.2.10	

Test purpose

Non CUG call to a CUG -IA user.

Ensure that call setup is not successful if the originating user is not a CUG user, no XML cug instance in the INVITE received and the terminating user is incoming access not allowed. The call setup is rejected with a 403 Forbidden final response.

Preconditions: Terminating user is a CUG user incoming access not allowed.

SIP header values:

INVITE:

Comments:

UA C		SUT	UA S
INVITE	→		
100 Trying	←		
403 Forbidden	←		
ACK	→		

TSS	TP	SUB reference	Selection expression
CUG/terminating_AS	CUG_N02_016	clause 4.5.2.10	

Test purpose

Non CUG call to a CUG +IA user.

Ensure that call setup is successful if the originating user is not a CUG user, no XML cug instance in the INVITE received and the terminating user is incoming access allowed.

Preconditions: Terminating user is a CUG user incoming access allowed.

SIP header values:

INVITE:

Comments:

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.3   Interaction with other services

5.3.1   Conference calling (CONF)

TSS		TP	SUB reference	Selection expression
CUG/interaction/CONF		CUG_N03_001	clause 4.5.2.4	
Test purpose				
Preconditions:				
SIP header values:				
INVITE:				
Comments:				
UA C		**SUT**	**UA S**	
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.3.2   Communication Diversion Services (CDIV)

5.3.2.1   Communication Forwarding Unconditional (CFU)

TSS		TP	SUB reference	Selection expression
CUG/interaction/CDIV		CUG_N04_001	clause 4.5.2.4	
Test purpose				
Preconditions:				
SIP header values:				
INVITE:				
Comments:				
UA C		**SUT**	**UA S**	
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.3.3   Explicit Communication Transfer (ECT)

TSS		TP	SUB reference	Selection expression
CUG/interaction/ECT		CUG_N05_001	clause 4.5.2.4	
Test purpose				
Preconditions:				
SIP header values:				
INVITE:				
Comments:				

UA C		SUT		UA S
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
ACK	→		→	ACK
		Communication		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.4   Test purposes for the ISUP/SIP Interworking

5.4.1   Interworking at the I-MGCF

TP516001	SIP reference: RFC 3261 [4]		ISUP reference: 7.4.1.1	
TSS reference:	SIP-ISUP/SS/CUG/			
SIP selection criteria:				
ISUP selection criteria:	PICS 5/7			
Test purpose:	*Mapping of <cug> XML element in the received INVITE cugCommunicationIndicator value "00"* Ensure that the <cugCommunicationIndicator> value "00" contained in the INVITE <cug> XML body is sent in a optional forward call indicator - CUG call indicator, if any other value of the optional forward call indicator have to be set not equal "0". No mapping of <networkIndicator> and <cugInterlockBinaryCode> into Closed User Group interlock code.			
SIP Parameter values:	INVITE: <cug> <networkIndicator>[PIXIT]</networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>00</cugCommunicationIndicator> </cug>			
ISUP Parameter values:	IAM: Optional Forward Call Indicator CUG call indicator = "00" When optional forward call indicator have to be sent in case of another indicator is not set to "0".			
Comments:	SIP	SUT	ISUP	
	INVITE	→	→ IAM	
	180 Ringing	←	← ACM	
		Ringing tone		
	200 OK INVITE	←	← ANM	
	ACK	→		
		Conversation		
	BYE	←	← REL	
	200 OK BYE	→	→ RLC	

TP516002	SIP reference: RFC 3261 [4]	ISUP reference: 7.4.1.1
TSS reference:	SIP-ISUP/SS/CUG/	
SIP selection criteria:		
ISUP selection criteria:	PICS 5/7	
Test purpose:	*Mapping of <cug> XML element in the received INVITE cugCommunicationIndicator value "01"* Ensure that the <cugCommunicationIndicator> value "01" contained in the INVITE <cug> XML body is not sent in an optional forward call indicator - CUG call indicator. If the optional forward call indicator has to be sent, the CUG call indicator is set to "00" no CUG call. No mapping of <networkIndicator> and <cugInterlockBinaryCode> into Closed User Group interlock code.	
SIP Parameter values:	INVITE: <cug> <networkIndicator>[PIXIT]</networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>01</cugCommunicationIndicator> </cug>	
ISUP Parameter values:	IAM: Optional Forward Call Indicator CUG call indicator = "00" When optional forward call indicator have to be sent in case of another indicator is not set to "0".	

Comments:	**SIP** **SUT** **ISUP**
	INVITE → → IAM
	180 Ringing ← ← ACM
	            Ringing tone
	200 OK INVITE ← ← ANM
	ACK →
	            Conversation
	BYE ← ← REL
	200 OK BYE → → RLC		

TP516003	SIP reference: RFC 3261 [4]	ISUP reference: 7.4.1.1
TSS reference:	SIP-ISUP/SS/CUG/	
SIP selection criteria:		
ISUP selection criteria:	PICS 5/7	
Test purpose:	*Mapping of <cug> XML element in the received INVITE cugCommunicationIndicator value "10"* Ensure that the <cugCommunicationIndicator> value "10" contained in the INVITE <cug> XML body is sent in a optional forward call indicator - CUG call indicator ="10". The XML <cug> <**networkIndicator**> is mapped into the IAM Closed User Group interlock code **Network identity** and the XML <cug> <**cugInterlockBinaryCode**> is mapped into the IAM Closed User Group interlock code **Binary code**.	
SIP Parameter values:	INVITE: <cug> <networkIndicator>[PIXIT]</networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>	

**ISUP Parameter
values:**
	IAM:
	Optional Forward Call Indicator CUG call indicator = "10"
	Closed User Group interlock code
	    Binary code derived from INVITE XML body <**cugInterlockBinaryCode**>
	    Network identity derived from INVITE XML body <**networkIndicator**>	

Comments:	**SIP** **SUT** **ISUP**
	INVITE → → IAM
	180 Ringing ← ← ACM
	                  Ringing tone
	200 OK INVITE ← ← ANM
	ACK →
	                  Conversation
	BYE ← ← REL
	200 OK BYE → → RLC	

TP516004	SIP reference: RFC 3261 [4]		ISUP reference: 7.4.1.1
TSS reference:	SIP-ISUP/SS/CUG/		
SIP selection criteria:			
ISUP selection criteria:	PICS 5/7		
Test purpose:	*Mapping of <cug> XML element in the received INVITE cugCommunicationIndicator value "11"* Ensure that the <cugCommunicationIndicator> value "11" contained in the INVITE <cug> XML body is sent in a optional forward call indicator - CUG call indicator ="11". The XML <cug> <**networkIndicator**> is mapped into the IAM Closed User Group interlock code **Network identity** and the XML <cug> <**cugInterlockBinaryCode**> is mapped into the IAM Closed User Group interlock code **Binary code**.		
SIP Parameter values:	INVITE: <cug> <networkIndicator>[PIXIT]</networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>		

ISUP Parameter values:	IAM:
	Optional Forward Call Indicator CUG call indicator = "11"
	Closed User Group interlock code
	    Binary code derived from INVITE XML body <**cugInterlockBinaryCode**>
	    Network identity derived from INVITE XML body <**networkIndicator**>		

Comments:	SIP SUT ISUP
	INVITE → → IAM
	180 Ringing ← ← ACM
	                                    Ringing tone
	200 OK INVITE ← ← ANM
	ACK →
	                                    Conversation
	BYE ← ← REL
	200 OK BYE → → RLC		

TP516005	SIP reference: RFC 3261 [4]		ISUP reference: 7.4.1.1
TSS reference:	SIP-ISUP/SS/CUG/		
SIP selection criteria:			
ISUP selection criteria:	NOT PICS 5/7		
Test purpose:	*Mapping of <cug> XML element in the received INVITE cugCommunicationIndicator value "10". The PSTN/ISDN network does not support CUG.* Ensure that the <cugCommunicationIndicator> value "10" contained in the INVITE <cug> XML body is not sent in a optional forward call indicator - CUG call indicator ="10" when the PSTN/ISDN does not support CUG. If the optional forward call indicator has to be sent, the CUG call indicator is set to "00" no CUG call. No mapping of <networkIndicator> and <cugInterlockBinaryCode> into Closed User Group interlock code.		
SIP Parameter values:	INVITE: <cug> <networkIndicator>[PIXIT]</networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>		
ISUP Parameter values:	IAM: Optional Forward Call Indicator CUG call indicator = "00" When optional forward call indicator have to be sent in case of another indicator is not set to "0"		
Comments:	**SIP**	**SUT**	**ISUP**
	INVITE →		→ IAM
	180 Ringing ←		← ACM
		Ringing tone	
	200 OK INVITE ←		← ANM
	ACK →		
		Conversation	
	BYE ←		← REL
	200 OK BYE →		→ RLC

TP516006	SIP reference: RFC 3261 [4]		ISUP reference: 7.4.1.1
TSS reference:	SIP-ISUP/SS/CUG/		
SIP selection criteria:			
ISUP selection criteria:	NOT PICS 5/7		
Test purpose:	*Mapping of <cug> XML element in the received INVITE cugCommunicationIndicator value "11". The PSTN/ISDN network does not support CUG.* Ensure that the <cugCommunicationIndicator> value "11" contained in the INVITE <cug> XML body is sent in a optional forward call indicator - CUG call indicator ="11". The XML <cug> <**networkIndicator**> is mapped into the IAM Closed User Group interlock code **Network identity** and the XML <cug> <**cugInterlockBinaryCode**> is mapped into the IAM Closed User Group interlock code **Binary code**.		
SIP Parameter values:	INVITE: <cug> <networkIndicator>[PIXIT]</networkIndicator> <cugInterlockBinaryCode>[PIXIT]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>		
ISUP Parameter values:			
Comments:	**SIP**	**SUT**	**ISUP**
	INVITE →		
	403 Forbidden ←		
	ACK →		

5.4.2   Interworking at the O-MGCF

TP608001	SIP reference: RFC 3261 [4]		ISUP reference: 7.4.1.2
TSS reference:	ISUP-SIP/SS/CUG/		
SIP selection criteria:	NOT PICS 5/7		
ISUP selection criteria:			
Test purpose:	*SIP network does not support CUG; CUG with outgoing access allowed is interworked in a normal call.* Ensure that the SUT if an IAM is received with Optional forward call indicator, CUG call indicator coded as "**CUG call with outgoing access**" and CUG interlock code or CUG call indicator coded as "Non CUG call" or Optional forward call indicator is absent, the SIP signalling procedure is not disrupted.		
SIP Parameter values:	No mapping		
ISUP Parameter values:			

Comments:	**ISUP/BICC** **SUT** **SIP**
	 IAM ➜ ➜ INVITE
	 ACM ⬅ ⬅ 180 Ringing
	        Ringing tone
	 ANM ⬅ ⬅ 200 OK INVITE
	                ➜ ACK
	          Conversation
	 REL ➜ ➜ BYE
	 RLC ⬅ ⬅ 200 OK BYE		

TP608002	SIP reference: RFC 3261 [4]		ISUP reference: ES 283 027 [5], clause 7.4.16
TSS reference:	ISUP-SIP/SS/CUG/		
SIP selection criteria:	NOT PICS 5/7		
ISUP selection criteria:			
Test purpose:	*SIP network does not support CUG; CUG with outgoing access not allowed is rejected.* Ensure that the SUT if an IAM is received with Optional forward call indicator, CUG call indicator coded as "**CUG call without outgoing access**" and CUG interlock code, a **REL** is sent. No INVITE is sent into the SIP network.		
SIP Parameter values:	No action		
ISUP Parameter values:	REL: Cause #29		
Comments:	**ISUP/BICC** **SUT** **SIP** IAM ➜ REL ⬅ RLC ➜		

TP608003	SIP reference: RFC 3261 [4]		ISUP reference: 7.4.1.2
TSS reference:	ISUP-SIP/SS/CUG/		
SIP selection criteria:	PICS 5/7		
ISUP selection criteria:			
Test purpose:	*SIP network supports CUG. CUG call indicator value "10" received.* Ensure that Optional Forward Call Indicator Parameter **CUG call indicator** is mapped into <cug> < cugCommunicationIndicator>, the Closed user group interlock code Parameter **Network identity** is mapped into <cug> <networkIndicator> and the **Binary code** is mapped into the <cug> <cugInterlockBinaryCode>.		
SIP Parameter values:	INVITE: <cug> <networkIndicator>[derived from IAM **Network identity**]</networkIndicator> <cugInterlockBinaryCode>[derived from IAM **Binary code**]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>		

ISUP Parameter values:	IAM:
	Optional Forward Call Indicator CUG call indicator = "10"
	Closed User Group interlock code
	    Binary code derived from INVITE XML body <**cugInterlockBinaryCode**>
	    Network identity derived from INVITE XML body <**networkIndicator**>		

Comments:	ISUP/BICC SUT SIP
	IAM → → INVITE
	ACM ← ← 180 Ringing
	      Ringing tone
	ANM ← ← 200 OK INVITE
	      → ACK
	      Conversation
	REL → → BYE
	RLC ← ← 200 OK BYE		

TP608004	SIP reference: RFC 3261 [4]		ISUP reference: 7.4.1.2
TSS reference:	ISUP-SIP/SS/CUG/		
SIP selection criteria:	PICS 5/7		
ISUP selection criteria:			
Test purpose:	*SIP network supports CUG. CUG call indicator value "11" received.* Ensure that Optional Forward Call Indicator Parameter **CUG call indicator** is mapped into <cug> < cugCommunicationIndicator>, the Closed user group interlock code Parameter **Network identity** is mapped into <cug> <networkIndicator> and the **Binary code** is mapped into the <cug> <cugInterlockBinaryCode>.		
SIP Parameter values:	INVITE: <cug> <networkIndicator>[derived from IAM **Network identity**]</networkIndicator> <cugInterlockBinaryCode>[derived from IAM **Binary code**]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>		

ISUP Parameter values:	IAM:
	Optional Forward Call Indicator CUG call indicator = "11"
	Closed User Group interlock code
	    Binary code derived from INVITE XML body <**cugInterlockBinaryCode**>
	    Network identity derived from INVITE XML body <**networkIndicator**>		

Comments:	ISUP/BICC SUT SIP
	IAM → → INVITE
	ACM ← ← 180 Ringing
	      Ringing tone
	ANM ← ← 200 OK INVITE
	      → ACK
	      Conversation
	REL → → BYE
	RLC ← ← 200 OK BYE		

History

Document history		
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