ETSI TS 103 975 V1.1.1 (2023-04)

TECHNICAL SPECIFICATION

**Core Network and Interoperability Testing (INT);
Closed User Group (CUG) using IP Multimedia (IM)
Core Network (CN) subsystem
at the AGCF connecting legacy access;
Conformance Test Specification (3GPP™ Release 17);
Test Suite Structure and Test Purposes (TSS&TP)**

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Foreword

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

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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1   Scope

The present document provides the Test Suite Structure (TSS) and Test Purposes (TP) for the Closed User Group (CUG) using IP Multimedia (IM) Core Network (CN) subsystem at the AGCF connecting legacy access. The Closed User Group (CUG) interworking is defined in ETSI TS 183 036 [3], the CUG requirements are described in ETSI EN 300 138-1 [4] in compliance with the relevant requirements. This Technical Specification (TS) is based on the ETSI TS 101 597-2 [6].

2   References

2.1   Normative 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 referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://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.

The following referenced documents are necessary for the application of the present document.

[1]   ETSI TS 124 654: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Closed User Group (CUG) using IP Multimedia (IM) Core Network (CN) subsystem, Protocol Specification (3GPP TS 24.654 Release 17)".

[2]   ETSI TS 101 597-1: "Core Network and Interoperability Testing (INT); Closed User Group (CUG) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance Test Specification (3GPPTM Release 12); Part 1: Protocol Implementation Conformance Statement (PICS)".

[3]   ETSI TS 183 036 (V3.7.1): "Core Network and Interoperability Testing (INT); ISDN/SIP interworking; Protocol specification".

[4]   ETSI EN 300 138-1: "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Digital Subscriber Signalling System No. One (DSS1) protocol; Part 1: Protocol specification".

[5]   ETSI ETS 300 136: "Integrated Services Digital Network (ISDN); Closed User Group (CUG) supplementary service; Service description".

[6]   ETSI TS 101 597-2 (V2.1.1): "Core Network and Interoperability Testing (INT); Closed User Group (CUG) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance Test Specification (3GPP™ Release 12); Part 2: Test Suite Structure and Test Purposes (TSS&TP)".

2.2   Informative references

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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 Definition of terms, symbols and abbreviations

3.1 Terms

Void.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 654 [1] and the following apply:

ACK	Acknowledgment
AGCF	Access Gateway Control Function
AS	Application Server
CD	Communication Deflection
CDIV	Communication DIVersion service
CFB	Communication Forwarding on Busy
CFNL	Communication Forwarding on Not Logged-in
CFNR	Communication Forwarding on No Reply
CFU	Communication Forwarding Unconditional
CN	Core Network
CONF	CONFerence calling
CSCF	Call Session Control Function
CUG	Closed User Group
IA	Incoming Access
ICB	Incoming Communication Barring within a CUG
IM	IP Multimedia
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISC	Reference point between Serving CSCF and Application Server
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
NNI	Network-to-Network Interface
OA	Outgoing Access
OAE	Outgoing Access, explicit request required
OAI	Outgoing Access, implicit outgoing access for all communications
OCB	Outgoing Communication Barring within a CUG
PIXIT	Protocol Implementation eXtra Information for Testing
REL	Release
SIP	Session Initiation Protocol
URI	Uniform Resource Identifier

4 User defined clause(s) from here onwards

4.0 Test Suite Structure introduction

CUG			
	originating_UE		CUG_U01_xxx
	originating_AS		
		CUG without preference	CUG_N01_xxx
		CUG without preference + OAE	CUG_N02_xxx
		CUG without preference + OAI	CUG_N03_xxx
		CUG with preference	CUG_N04_xxx
		CUG with preference + OAE	CUG_N05_xxx
		CUG with preference + OAI	CUG_N06_xxx
		No CUG	CUG_N07_xxx
	terminating_AS		
		CUG with OA not allowed	CUG_N08_xxx
		CUG with OA allowed	CUG_N09_xxx
		No CUG	CUG_N10_xxx
	Services	CONF	CUG_N11_xxx
		CDIV	CUG_N12_xxx

4.1 Configuration

4.1.0 Introduction

The scope of the present document is to test the signalling and procedural aspects of the stage 3 requirements as described in ETSI TS 124 654 [1], the SIP/ISDN interworking described in ETSI TS 183 036 [3], the CUG requirements described in ETSI ETS 300 136 [5] and ETSI EN 300 138-1 [4].

Therefore to test the appropriate entities the configurations below are applicable.

4.1.1 Testing of the AS

The AS entity is responsible for performing and managing services.
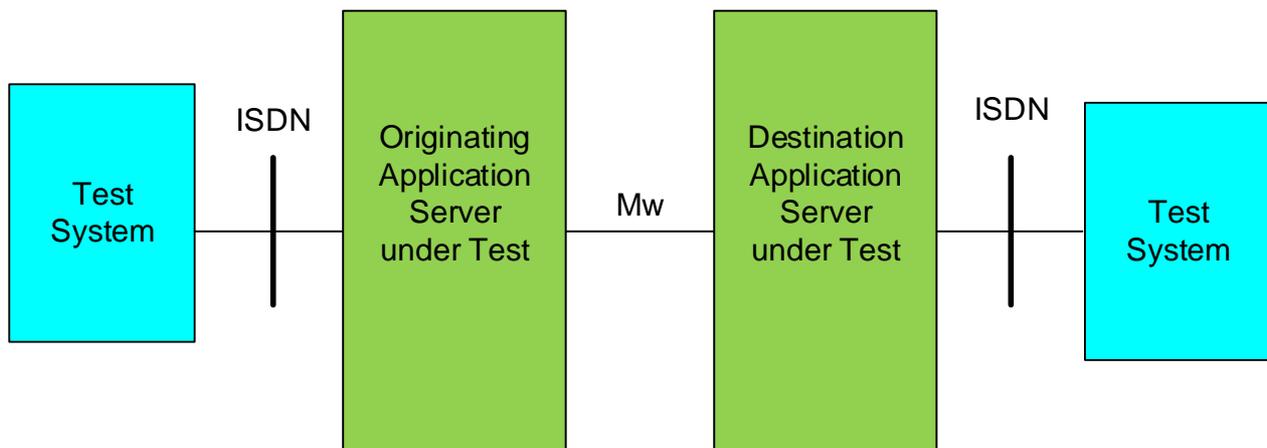
Figure 1: Applicable interface to test AS functionalities
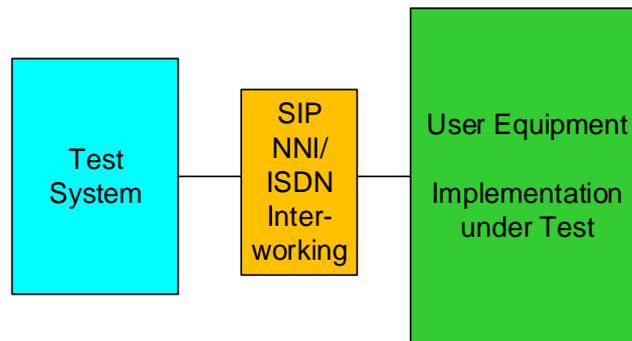
Figure 2: Applicable interfaces for tests using a (generic) NNI interface

5   Test Purposes (TP)

5.1   Introduction

5.1.1   TP naming convention

For each test requirement a TP is defined.

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 entity
<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 ETSI TS 124 654 [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 ETSI TS 101 597-1 [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   Actions at the originating UA

TSS CUG/originating_UE	TP CUG_U01_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.1	Selection expression PICS 4.5.1/1 AND PICS 4.6.1/1
Test purpose *Explicit request of CUG service Outgoing Access.* The originating user requests explicitly the CUG service by including in the initial SETUP with a CUGrequestType containing the preferred CUG and an outgoing access request set to "true".			
Preconditions:			
ISDN header values: SETUP: Facility CUGCallOperation invoke <OARequested>TRUE <CUGIndex>[PIXIT]			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> <cugIndex>[PIXIT]</cugIndex> </cugCallOperation> </cug>			
Comments:			
User equipment		**Test equipment** ➔ SETUP requesting CUG explicitly	

TSS CUG/originating_UE	TP CUG_U01_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.1	Selection expression PICS 4.5.1/1 AND PICS 4.6.1/1
Test purpose *Explicit request of CUG service without Outgoing Access.* The originating user requests explicitly the CUG service by including in the initial SETUP with a CUGrequestType containing the preferred CUG and an outgoing access request set to "false".			
Preconditions:			
ISDN header values: Facility CUGCallOperation invoke <OARequested>FALSE <CUGIndex>[PIXIT]			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[PIXIT]</cugIndex> </cugCallOperation> </cug>			
Comments:			
User equipment		**Test equipment** ➔ SETUP requesting CUG explicitly	

TSS CUG/originating_UE	TP CUG_U01_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.1	Selection expression PICS 4.5.1/1 AND PICS 4.6.1/1 AND PICS 4.6.1/2
Test purpose *Explicit request of CUG service without CUG index.* The originating user requests explicitly the CUG service by including in the initial SETUP a CUGrequestType containing the preferred CUG and no 'cugIndex' element is present.			
Preconditions:			
ISDN header values: SETUP: Facility CUGCallOperation invoke <OARequested>FALSE			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> </cugCallOperation> </cug>			
Comments: **User equipment** **Test equipment** ➔ SETUP requesting CUG explicitly			

5.2.2   Actions at the AS of the originating User

5.2.2.1   CUG without preference

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1

Test purpose
CUG without preference: SETUP with CUG index, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
    registered CUGIndex,
forwards a SETUP request containing a CUG element with
    CUG index.

Preconditions: Originating user has subscribed to CUG
   Options for registered CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: **not allowed**

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
        <CUGIndex>[PIXIT]
        <OARequested>FALSE

ISDN header values:
SETUP 2: (implementation option)

Non CUG call
or
Facility CUGCallOperation invoke
        <CUGIndex>
        <OARequested>FALSE

SIP header values:
INVITE1:
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest><cugIndex>[registered CUG index]</cugIndex>
    </cugCallOperation>
</cug>

INVITE2:
Content-Disposition: …;handling=required
<cug>
    <networkIndicator >[PIXIT]</ networkIndicator>
    <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
    <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:
Test monitor equipment (Mw)   AS   **Test monitor equipment (Mw)**
INVITE1   →   →   INVITE2

Comments:
Test monitor equipment (ISDN)   AS   **Test monitor equipment (ISDN)**
SETUP1   →   →   SETUP2

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/10

Test purpose
CUG without preference + OCB: SETUP with CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to Outgoing Communication Barring.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: OCB
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed			

ISDN header values:
SETUP:
Facility CUGCallOperation invoke
       <OARequested>FALSE
       <CUGIndex>[PIXIT]
 	
DISCONNECT cause value No.29			

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>			

Comments: **Test monitor equipment (Mw)** **AS** INVITE → 603 Decline ← ACK →			
Comments: **Test monitor equipment (Mw)** **AS** SETUP → DISC cause value #29 ← REL →			

TSS	TP	CUG reference	Selection expression
CUG/originating_AS/CUG without preference	CUG_N01_003	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/1

Test purpose
CUG without preference: SETUP with unallocated CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to not allocated CUG index.

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed

ISDN header values:
SETUP:
Facility CUGCallOperation invoke
<cugIndex>[unregistered CUG]</cugIndex>

DISCONNECT cause value No.29

SIP header values:
INVITE:
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
        <cugIndex>[unregistered CUG]</cugIndex>
    </cugCallOperation>
</cug>

Comments:		
Test monitor equipment (Mw)	**AS**	
INVITE	→	
403 Forbidden	←	
ACK	→	

Comments:		
Test monitor equipment (ISDN)	**AS**	
SETUP	→	
DISC cause value #29	←	
REL	→	

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1

Test purpose

CUG without preference: SETUP with CUG index and outgoingAccessRequest = true, successful.

Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
forwards a SETUP request containing a CUG element with
    CUG index.

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed

ISDN header values:

SETUP 1:

Facility CUGCallOperation invoke
        <OARequested>TRUE
        <cugIndex>

ISDN header values:

SETUP 2: (implementation option)

Non CUG call
or
Facility CUGCallOperation invoke
        <cugIndex>
        <OARequested>FALSE

SIP header values:

INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

INVITE2:
Content-Disposition: …;handling=required
<cug>
   <networkIndicator >[registered CUG index]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments: **Test monitor equipment (Mw)** INVITE1		**AS** →		**Test monitor equipment (Mw)** INVITE2
Comments: **Test monitor equipment (ISDN)** SETUP1	→	**AS**	→	**Test monitor equipment (ISDN)** SETUP2

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_005	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/10

Test purpose
CUG without preference +OCB: SETUP with CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to Outgoing Communication Barring.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
Intra CUG restrictions: OCB
    Options for public identity in use:
Preferential CUG: None designated
Outgoing access: not allowed			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
       \<OARequested>TRUE
       \<cugIndex>
 	
DISCONNECT cause value No.29			

SIP header values:
INVITE:
\<cug>
   \<cugCallOperation>
      \<outgoingAccessRequest>TRUE\</outgoingAccessRequest>
      \<cugIndex>[registered CUG index]\</cugIndex>
   \</cugCallOperation>
\</cug>			

Comments: **Test monitor equipment (Mw)** AS INVITE → 603 Decline ← ACK →			
Comments: **Test monitor equipment (ISDN)** AS SETUP → DISCONNECT cause value #29 ← ACK →			

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_006	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1

Test purpose
CUG without preference: SETUP with unallocated CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      outgoingAccessRequest = true and
      unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to not allocated CUG index.			

Preconditions: Originating user has subscribed to CUG
   Options for registered CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>>TRUE <CUGIndex>[unregistered CUG] DISCONNECT cause value No.29			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> <cugIndex>[unregistered CUG]</cugIndex> </cugCallOperation> </cug>			

Comments: **Test monitor equipment (Mw)**	AS	
INVITE	→	
403 Forbidden	←	
ACK	→	

Comments: **Test monitor equipment (ISDN)**	AS	
SETUP	→	
DISC cause value #29	←	
REL	→	

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_007	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1

Test purpose
CUG without preference: SETUP without CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
    outgoingAccessRequest = false,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to missing CUGindex.

Preconditions: Originating user has subscribed to CUG
   Options for registered CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
    <OARequested>FALSE
DISCONNECT with cause value No.62

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

Comments:
Test monitor equipment (Mw)   AS
INVITE   →
403 Forbidden   ←
ACK   →

Comments:
Test monitor equipment (ISDN)   AS
SETUP   →
DISC cause value #62   ←
REL   →

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_008	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1

Test purpose
CUG without preference: SETUP without CUG index and with outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
   outgoingAccessRequest = true,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to missing CUGindex.

Preconditions: Originating user has subscribed to CUG
   Options for registered CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE

DISCONNECT cause value No.62

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

Comments:
Test monitor equipment (Mw)   **AS**
INVITE   →
403 Forbidden   ←
ACK   →

Comments:
Test monitor equipment (ISDN)   **AS**
SETUP   →
DISC cause value #62   ←
REL   →

TSS CUG/originating_AS/CUG without preference	TP CUG_N01_009	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1
Test purpose *CUG without preference: SETUP for non-CUG communication, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing no cug element, rejects the SETUP request by sending a DISCONNECT cause value No.62 due to missing cug element.			

Preconditions: Originating user has subscribed to CUG
     Options for registered CUG index:
     Intra CUG restrictions: None designated (-OCB)
     Options for public identity in use:
     Preferential CUG: None designated
     Outgoing access: not allowed			

ISDN header values: SETUP 1: **No CUG Facility** DISCONNECT cause value No.62			
SIP header values: INVITE: No element <cug>			
Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ⬅ ACK ➔			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #62 ⬅ REL ➔			

5.2.2.2   CUG without preference + OAE

TSS	TP	CUG reference	Selection expression
CUG/originating_AS/CUG without preference + OAE	CUG_N02_001	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/2

Test purpose
CUG without preference + OAE: SETUP with CUG index, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
forwards a SETUP request containing a CUG element with
    CUG index.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed per communication			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>FALSE <CUGIndex> **ISDN header values:** SETUP 2: (implementation option) Non CUG call or Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug> INVITE2: Content-Disposition: …;handling=required <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 → → INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 → → SETUP2			

TSS CUG/originating_AS/CUG without preference + OAE	TP CUG_N02_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/10

Test purpose
CUG without preference + OAE + OCB: SETUP with CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to Outgoing Communication Barring.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: OCB
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed per communication			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
       <OARequested>FALSE
       <CUGIndex>
 	
DISCONNECT cause value No.29			

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>			

Comments: **Test monitor equipment (Mw)** **AS** INVITE → 603 Decline ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #29 ← REL →			

TSS	TP	CUG reference	Selection expression
CUG/originating_AS/CUG without preference + OAE	CUG_N02_003	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/2

Test purpose
CUG without preference + OAE: SETUP with unallocated CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to not allocated CUG index.

Preconditions: Originating user has subscribed to CUG
Options for registered CUG index:
Intra CUG restrictions: None designated (-OCB)
Options for public identity in use:
Preferential CUG: None designated
Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>FALSE
      <CUGIndex>

DISCONNECT cause value No.29

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[unregistered CUG]</cugIndex>
   </cugCallOperation>
</cug>

403 Forbidden
   Reason: …

Comments:	
Test monitor equipment (Mw)	**AS**
INVITE	→
403 Forbidden	←
ACK	→

Comments:	
Test monitor equipment (ISDN)	**AS**
SETUP	→
DISC cause value #29	←
REL	→

TSS	TP	CUG reference	Selection expression
CUG/originating_AS/CUG without preference + OAE	CUG_N02_004	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/2

Test purpose
CUG without preference + OAE: SETUP with CUG index and outgoingAccessRequest = true, successful non CUG communication.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
forwards a SETUP request containing a CUG element with
    registered CUG index.

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
        <OARequested>TRUE
        <CUGIndex>

ISDN header values:
SETUP 2: (implementation option)

Non CUG call
or
Facility CUGCallOperation invoke
                <CUGIndex>
                <OARequested>TRUE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

INVITE2:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments:

Test monitor equipment (Mw)		AS		Test monitor equipment (ISC, Mw)
INVITE1	→		→	INVITE2

Comments:

Test monitor equipment (ISDN)		AS		Test monitor equipment (ISDN)
SETUP1	→		→	SETUP2

TSS CUG/originating_AS/CUG without preference + OAE	TP CUG_N02_005	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2
Test purpose *CUG without preference + OAE + OCB within CUG: SETUP with CUG index and outgoingAccessRequest = true, successful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugCallOperation containing outgoingAccessRequest = true and registered CUGIndex, forwards the SETUP request containing no cug element.			
Preconditions: Originating user has subscribed to CUG **Options for registered CUG index:** Intra CUG restrictions: **OCB** within CUG **Options for public identity in use:** Preferential CUG: None designated Outgoing access: allowed per communication			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE <CUGIndex> **ISDN header values:** SETUP 2: No CUG Facility			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug> INVITE2: No element <cug>			
Comments:			
Test monitor equipment (Mw) INVITE1	**AS** →	→	**Test monitor equipment (ISC, Mw)** INVITE2
Comments:			
Test monitor equipment (ISDN) SETUP1	**AS** →	→	**Test monitor equipment (ISDN)** SETUP2

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/CUG without preference + OAE		CUG_N02_006	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/2
Test purpose				

CUG without preference + OAE: SETUP with unallocated CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to non allocated CUG index.				

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed per communication				

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
       <OARequested>TRUE
       unregistered <CUGIndex>
 	
DISCONNECT cause value No.62				

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[unregistered CUG]</cugIndex>
   </cugCallOperation>
</cug>
 	
403 Forbidden
   Reason: …				

Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ⬅ ACK ➔				
Comments: **Test monitor equipment (Mw)** **AS** SETUP ➔ DISC cause value #62 ⬅ ACK ➔				

TSS CUG/originating_AS/CUG without preference + OAE	TP CUG_N02_007	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2

Test purpose
CUG without preference + OAE: SETUP without CUG index, unsuccessful outgoing access not allowed.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
    outgoingAccessRequest = false,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to outgoing access not allowed.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed per communication			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>FALSE DISCONNECT cause value No.62			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> </cugCallOperation> </cug> 403 Forbidden Reason: …			

Comments: Test monitor equipment (Mw)		AS
INVITE	→	
403 Forbidden	←	
ACK	→	

Comments: Test monitor equipment (ISDN)		AS
SETUP	→	
DISC cause value #62	←	
REL	→	

TSS CUG/originating_AS/CUG without preference + OAE	TP CUG_N02_008	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2

Test purpose
CUG without preference + OAE: SETUP without CUG index and with outgoingAccessRequest = true, successful outgoing access allowed.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true,
forwards the SETUP request containing no cug element due to outgoing access allowed.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed per communication			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE **ISDN header values:** SETUP 2: No CUG Facility			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> </cugCallOperation> </cug> INVITE2: No element <cug>			
Comments:			
Test monitor equipment (Mw)	**AS**	**Test monitor equipment (ISC, Mw)**	
INVITE1	→	→	INVITE2
Comments:			
Test monitor equipment (ISDN)	**AS**	**Test monitor equipment (ISDN)**	
SETUP1	→	→	SETUP2

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/CUG without preference + OAE		CUG_N02_009	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/2
Test purpose				
CUG without preference + OAE: SETUP for non-CUG communication, unsuccessful. Ensure that the SUT on receipt of a SETUP request containing no cug element, rejects the SETUP request by sending a DISCONNECT cause value No. 62.				

Preconditions: Originating user has subscribed to CUG
  Options for registered CUG index:
  Intra CUG restrictions: None designated (-OCB)
  Options for public identity in use:
  Preferential CUG: None designated
  Outgoing access: allowed per communication				

ISDN header values: SETUP 1: No CUG Facility DISCONNECT cause value No. 62				
SIP header values: INVITE: No xml element <cug> 403 Forbidden Reason: …				
Comments: **Test monitor equipment (ISC)**		**AS**		
INVITE	➜			
403 Forbidden	←			
ACK	➜			
Comments: **Test monitor equipment (ISDN)**		**AS**		
SETUP	➜			
DISC cause value #62	←			
REL	➜			

5.2.2.3 CUG without preference + OAI

TSS CUG/originating_AS/CUG without preference + OAI	TP CUG_N03_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI: SETUP with CUG index, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
forwards a SETUP request containing a CUG element with
    CUG index.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE **ISDN header values:** SETUP 2: (implementation option) Non CUG call or Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug> INVITE2: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (Mw)**		**AS**	**Test monitor equipment (ISC, Mw)**
INVITE1	→	→	INVITE2
Comments: **Test monitor equipment (ISDN)**		**AS**	**Test monitor equipment (ISDN)**
SETUP1	→	→	SETUP2

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/CUG without preference + OAI		CUG_N03_002	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI and OCB within CUG*: SETUP with CUG index, successful.*
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
forwards a SETUP request containing no cug element.

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: OCB within CUG
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed permanent

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
        <CUGIndex>

ISDN header values:
SETUP 2:
Non CUG call

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
    </cugCallOperation>
</cug>

INVITE2:
No element <cug>

Comments:			
Test monitor equipment (Mw)		**AS**	**Test monitor equipment (ISC, Mw)**
INVITE1	→	→	INVITE2

Comments:			
Test monitor equipment (ISDN)		**AS**	**Test monitor equipment (ISDN)**
SETUP1	→	→	SETUP2

TSS CUG/originating_AS/CUG without preference + OAI		TP CUG_N03_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI: SETUP with unregistered CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to non allocated CUG index.				

Preconditions: Originating user has subscribed to CUG
  Options for registered CUG index:
  Intra CUG restrictions: None designated (-OCB)
  Options for public identity in use:
  Preferential CUG: None designated
  Outgoing access: allowed permanent				

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> [unregistered CUG] DISCONNECT cause value No. 62				
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[unregistered CUG]</cugIndex> </cugCallOperation> </cug> 403 Forbidden Reason: …				
Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ⬅ ACK ➔				
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #62 ⬅ REL ➔				

TSS CUG/originating_AS/CUG without preference + OAI	TP CUG_N03_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI: SETUP with CUG index and outgoingAccessRequest = true, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
forwards the SETUP request containing a CUG element with
    registered CUG index.

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed permanent

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>

ISDN header values:
SETUP 2: (implementation option)

Non CUG call
or
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>TRUE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG]</cugIndex>
   </cugCallOperation>
</cug>

INVITE2:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments: Test monitor equipment (Mw)		AS		Test monitor equipment (ISC, Mw)
INVITE1	→		→	INVITE2

Comments: Test monitor equipment (ISDN)		AS		Test monitor equipment (ISDN)
SETUP1	→		→	SETUP2

TSS CUG/originating_AS/CUG without preference + OAI	TP CUG_N03_005	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI and OCB within CUG*: SETUP with CUG index and outgoingAccessRequest = true, successful.*
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      outgoingAccessRequest = true and
      registered CUGIndex,
forwards a SETUP request containing no cug element.			

Preconditions: Originating user has subscribed to CUG
   Options for registered CUG index:
   Intra CUG restrictions: OCB within CUG
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: allowed permanent			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>
 	
ISDN header values:
SETUP 2:
No CUG Facility			

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>
 	
INVITE2:
No element <cug>			

Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

TSS CUG/originating_AS/CUG without preference + OAI	TP CUG_N03_006	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI: SETUP with unregistered CUG index and outgoingAccessRequest = true,
unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to non allocated CUG index.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE <CUGIndex>			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> <cugIndex>[unregistered CUG]</cugIndex> </cugCallOperation> </cug> 403 Forbidden Reason: …			
Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ← ACK ➔			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #62 ← REL ➔			

TSS CUG/originating_AS/CUG without preference + OAI	TP CUG_N03_007	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI: SETUP without CUG index, successful outgoing access allowed.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = false,
forwards a SETUP request containing no cug element.			

Preconditions: Originating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>FALSE <CUGIndex> **ISDN header values:** SETUP 2: No CUG Facility			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> </cugCallOperation> </cug> INVITE2: No xml element <cug>			
Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

TSS CUG/originating_AS/CUG without preference + OAI	TP CUG_N03_008	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
CUG without preference + OAI: SETUP without CUG index and with outgoingAccessRequest = true, successful
outgoing access allowed.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     outgoingAccessRequest = true,
forwards a SETUP request containing no cug element.			

Preconditions: Originating user has subscribed to CUG
   Options for registered CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE **ISDN header values:** SETUP 2: No CUG Facility			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> </cugCallOperation> </cug> INVITE2: No element <cug>			
Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 → → INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 → → SETUP2			

TSS CUG/originating_AS/CUG without preference + OAI	TP CUG_N03_009	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3
Test purpose *CUG without preference + OAI: SETUP for non-CUG communication, successful.* Ensure that the SUT on receipt of a SETUP request containing no cug element, forwards a SETUP request containing no cug element.			
Preconditions: Originating user has subscribed to CUG **Options for registered CUG index:** Intra CUG restrictions: None designated (-OCB) **Options for public identity in use:** Preferential CUG: None designated Outgoing access: allowed permanent			
ISDN header values: SETUP 1: No CUG Facility **ISDN header values:** SETUP 2: No CUG Facility			
SIP header values: INVITE1: No xml element <cug>			
Comments: **Test monitor equipment (Mw)** INVITE1	**AS** ➔	➔	**Test monitor equipment (ISC, Mw)** INVITE2
Comments: **Test monitor equipment (ISDN)** SETUP1	**AS** ➔	➔	**Test monitor equipment (ISDN)** SETUP2

5.2.2.4   CUG with preference

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose
CUG with preference: SETUP with CUG index, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
cugCallOperation containing
registered CUGIndex,
forwards a SETUP request containing a CUG element with
registered CUG index.

Preconditions: Originating user has subscribed to CUG
Options for registered and preferred CUG index:
Intra CUG restrictions: None designated (-OCB)
Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: not allowed

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
<CUGIndex>>[registered CUG index]
<OARequested>FALSE
ISDN header values:
SETUP 2: (implementation option)
Non CUG call
or
Facility CUGCallOperation invoke
<CUGIndex>

SIP header values:
INVITE1:
<cug>
<cugCallOperation>
<outgoingAccessRequest>FALSE</outgoingAccessRequest
<cugIndex>[registered CUG index]</cugIndex>
</cugCallOperation>
</cug>
INVITE2:
Content-Disposition: …;handling=required
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
<cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:			
Test monitor equipment (Mw)		**AS**	**Test monitor equipment (ISC, Mw)**
INVITE1	→	→	INVITE2

Comments:			
Test monitor equipment (ISDN)		**AS**	**Test monitor equipment (ISDN)**
SETUP1	→	→	SETUP2

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4 AND PICS 4.7.1/10
Test purpose *CUG with preference + OCB: SETUP with CUG index, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugCallOperation containing registered CUGIndex, rejects the SETUP request by sending a DISCONNECT cause value No.29 due to Outgoing Communication Barring.			
Preconditions: Originating user has subscribed to CUG **Options for registered and preferred CUG index:** Intra CUG restrictions: OCB **Options for public identity in use:** Preferential CUG: registered CUG Outgoing access: not allowed			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE DISCONNECT cause value No.29			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug>			
Comments: **Test monitor equipment (Mw)** **AS** INVITE → 603 Decline ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #29 ← REL →			

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose
CUG with preference: SETUP with unregistered CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to non allocated CUG index.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: not allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>FALSE <CUGIndex> DISCONNECT cause value No. 62			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[unregistered CUG]</cugIndex> </cugCallOperation> </cug> 403 Forbidden Reason: …			
Comments: **Test monitor equipment (Mw)** **AS** INVITE → 403 Forbidden ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #62 ← REL →			

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose
CUG with preference: SETUP with CUG index and outgoingAccessRequest = true, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
forwards a SETUP request containing a CUG element with
    CUG index.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: not allowed			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>
 	
ISDN header values:
SETUP 2: (implementation option)
 	
Non CUG call
or
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE			

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>
 	
INVITE2:
Content-Disposition: …;handling=required
<cug>
   <networkIndicator >[registered CUG index]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>			

Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_005	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4 AND PICS 4.7.1/10

Test purpose
CUG with preference +OCB: SETUP with CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to Outgoing Communication Barring.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: OCB
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: not allowed			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
       <OARequested>TRUE
       <CUGIndex>
 	
DISCONNECT cause value No.29			

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>			

Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 603 Decline ← ACK ➔			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #29 ← REL ➔			

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/CUG with preference		CUG_N04_006	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose
CUG with preference: SETUP with unregistered CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        unregistered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to non allocated CUG index.

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: not allowed

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>

DISCONNECT cause value No. 62

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[unregistered CUG]</cugIndex>
   </cugCallOperation>
</cug>

403 Forbidden
   Reason: …

Comments:

Test monitor equipment (Mw)		**AS**
INVITE	→	
403 Forbidden	←	
ACK	→	

Comments:

Test monitor equipment (ISDN)		**AS**
SETUP	→	
DISC cause value #62	←	
REL	→	

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_007	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose
CUG with preference: SETUP without CUG index, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     outgoingAccessRequest = false,
forwards a SETUP request containing a CUG element with
   CUG index.

Preconditions: Originating user has subscribed to CUG
  Options for registered and preferred CUG index:
  Intra CUG restrictions: None designated (-OCB)
  Options for public identity in use:
  Preferential CUG: registered CUG
  Outgoing access: not allowed

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>FALSE
      <CUGIndex>

ISDN header values:
SETUP 2: (implementation option)

Non CUG call
or
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
     <outgoingAccessRequest>FALSE</outgoingAccessRequest>
   </cugCallOperation>
</cug>

INVITE2:
Content-Disposition: …;handling=required
<cug>
   <networkIndicator >[registered CUG index]</ networkIndicator>
   <cugInterlockBinaryCode>[related to preferred CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments: Test monitor equipment (Mw)	AS		Test monitor equipment (ISC, Mw)
INVITE1	→	→	INVITE2

Comments: Test monitor equipment (ISDN)	AS		Test monitor equipment (ISDN)
SETUP1	→	→	SETUP2

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_008	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose
CUG with preference: SETUP without CUG index and with outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true,
rejects the SETUP request by sending a DISCONNECT cause value No.62 due to outgoing access not allowed.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: not allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE <cugIndex> DISCONNECT cause value No.62			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> </cugCallOperation> </cug> 403 Forbidden Reason: …			
Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ⬅ ACK ➔			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #62 ⬅ REL ➔			

TSS CUG/originating_AS/CUG with preference	TP CUG_N04_009	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4
Test purpose *CUG with preference: SETUP for non-CUG communication, successful.* Ensure that the SUT on receipt of a SETUP request containing no cug element, forwards a SETUP request containing a CUG element with CUG index.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: not allowed			

ISDN header values:
SETUP 1:
No CUG Facility
 	
ISDN header values:
SETUP 2: (implementation option)
 	
Non CUG call
or
Facility CUGCallOperation invoke
        <CUGIndex>
        <outgoingAccessRequest>FALSE			

SIP header values:
INVITE1:
No xml element <cug>
 	
INVITE2:
Content-Disposition: …;handling=required
<cug>
   <networkIndicator >[registered CUG index]</ networkIndicator>
   <cugInterlockBinaryCode>[related to preferred CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>			

Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

5.2.2.5   CUG with preference + OAE

TSS CUG/originating_AS/CUG with preference + OAE	TP CUG_N05_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/5
Test purpose *CUG with preference + OAE: SETUP with CUG index, successful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugCallOperation containing registered CUGIndex, forwards a SETUP request containing a CUG element with CUG index.			
Preconditions: Originating user has subscribed to CUG **Options for registered and preferred CUG index:** Intra CUG restrictions: None designated (-OCB) **Options for public identity in use:** Preferential CUG: registered CUG Outgoing access: allowed per communication			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>FALSE <CUGIndex> **ISDN header values:** SETUP 2: (implementation option) Non CUG call or Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug> INVITE2: Content-Disposition: …;handling=required <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

TSS CUG/originating_AS/CUG with preference + OAE	TP CUG_N05_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/5 AND PICS 4.7.1/10

Test purpose
CUG with preference + OAE + OCB: SETUP with CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
cugCallOperation containing
registered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 to Outgoing Communication Barring.

Preconditions: Originating user has subscribed to CUG
Options for registered and preferred CUG index:
Intra CUG restrictions: OCB
Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
<CUGIndex>
DISCONNECT cause value No.29

SIP header values:
INVITE:
<cug>
<cugCallOperation>
<outgoingAccessRequest>FALSE</outgoingAccessRequest>
<cugIndex>[registered CUG index]</cugIndex>
</cugCallOperation>
</cug>

Comments:		
Test monitor equipment (Mw)		AS
INVITE	➔	
603 Decline	⬅	
ACK	➔	

Comments:		
Test monitor equipment (ISDN)		AS
SETUP	➔	
DISC cause value #29	⬅	
REL	➔	

TSS CUG/originating_AS/CUG with preference + OAE	TP CUG_N05_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/5

Test purpose
CUG with preference + OAE: SETUP with unregistered CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      unregistered CUGIndex,
rejects the SETUP request by with Cause value No.29 due to not allocated CUG index.

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: registered CUG
   Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
     <CUGIndex>
     <OARequested>FALSE

DISCONNECT cause value No.29

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[unregistered CUG]</cugIndex>
   </cugCallOperation>
</cug>

403 Forbidden
   Reason: …

Comments:
Test monitor equipment (Mw)   **AS**
INVITE   ➔
403 Forbidden   ⬅
ACK   ➔

Comments:
Test monitor equipment (ISDN)   **AS**
SETUP   ➔
DISC cause value #29   ⬅
REL   ➔

TSS CUG/originating_AS/CUG with preference + OAE	TP CUG_N05_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/5

Test purpose
CUG with preference + OAE: SETUP with CUG index and outgoingAccessRequest = true, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
forwards a SETUP request containing a CUG element with
    CUG index.

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>

ISDN header values:
SETUP 2: (implementation option)

Non CUG call
or
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>TRUE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <OARequested>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

INVITE2:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments:

Test monitor equipment (Mw)		AS		Test monitor equipment (ISC, Mw)
INVITE1	→		→	INVITE2

Comments:

Test monitor equipment (ISDN)		AS		Test monitor equipment (ISDN)
SETUP1	→		→	SETUP2

TSS	TP	CUG reference	Selection expression
CUG/originating_AS/CUG with preference + OAE	CUG_N05_005	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/5

Test purpose
CUG with preference + OAE + OCB within CUG*: SETUP with CUG index and outgoingAccessRequest = true, successful.*
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      outgoingAccessRequest = true and
      registered CUGIndex,
forwards a SETUP request containing no cug element.

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
Intra CUG restrictions: OCB within CUG
   Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>

ISDN header values:
SETUP 2:
No CUG Facility

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

INVITE2:
No element <cug>

Comments:			
Test monitor equipment (Mw)	**AS**	**Test monitor equipment (ISC, Mw)**	
INVITE1	→	→	INVITE2

Comments:			
Test monitor equipment (ISDN)	**AS**	**Test monitor equipment (ISDN)**	
SETUP1	→	→	SETUP2

ETSI

TSS CUG/originating_AS/CUG with preference + OAE	TP CUG_N05_006	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/5

Test purpose
CUG with preference + OAE: SETUP with unregistered CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        unregistered CUGIndex,
rejects the SETUP request by sending DISCONNECT cause value No.62 due to non allocated CUG index.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: allowed per communication			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>
 	
DISCONNECT with cause value No.62			

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[unregistered CUG]</cugIndex>
   </cugCallOperation>
</cug>			

Comments: **Test monitor equipment (Mw)** **AS** INVITE → 403 Forbidden ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #62 ← REL →			

TSS CUG/originating_AS/CUG with preference + OAE	TP CUG_N05_007	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/5

Test purpose

CUG with preference + OAE: SETUP without CUG index and with outgoingAccessRequest = false, successful.

Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = false,
forwards a SETUP request containing a CUG element with
    CUG index.

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>FALSE

ISDN header values:
SETUP 2: (implementation option)

Non CUG call
or
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
   </cugCallOperation>
</cug>

INVITE2 (Implementation option):
Content-Disposition: …;handling=required
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to preferred CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:

Test monitor equipment (Mw)		AS		Test monitor equipment (ISC, Mw)
INVITE1	→		→	INVITE2

Comments:

Test monitor equipment (ISDN)		AS		Test monitor equipment (ISDN)
SETUP1	→		→	SETUP2

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/CUG with preference + OAE		CUG_N05_008	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/5

Test purpose

CUG with preference + OAE: SETUP without CUG index and with outgoingAccessRequest = true, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     outgoingAccessRequest = true,
forwards a SETUP request containing no cug element.

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated
   Options for public identity in use:
   Preferential CUG: registered CUG
   Outgoing access: allowed per communication

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE

ISDN header values:
SETUP 2:

Non CUG call

SIP header values:
INVITE1:
```
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>TRUE</outgoingAccessRequest>
    </cugCallOperation>
</cug>
```

INVITE2 (Implementation option):
No xml element <cug>

Comments:

Test monitor equipment (Mw)		**AS**		**Test monitor equipment (ISC, Mw)**
INVITE1	→		→	INVITE2

Comments:

Test monitor equipment (ISDN)		**AS**		**Test monitor equipment (ISDN)**
SETUP1	→		→	SETUP2

TSS CUG/originating_AS/CUG with preference + OAE	TP CUG_N05_009	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/5
Test purpose *CUG with preference + OAE: SETUP for non-CUG communication, successful.* Ensure that the SUT on receipt of a SETUP request containing no cug element, returns a SETUP request containing a CUG element with CUG index.			

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: registered CUG
   Outgoing access: allowed per communication			

ISDN header values:
SETUP 1:
No CUG Facility
 	
ISDN header values:
SETUP 2: (implementation option)
 	
Non CUG call
or
Facility CUGCallOperation invoke
       <CUGIndex>
       <OARequested>FALSE			

SIP header values:
INVITE1:
No element <cug>
 	
INVITE2 (Implementation option):
Content-Disposition: …;handling=required
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to preferred CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>			

Comments:				
Test monitor equipment (Mw)		**AS**		**Test monitor equipment (ISC, Mw)**
INVITE1	→		→	INVITE2

Comments:				
Test monitor equipment (ISDN)		**AS**		**Test monitor equipment (ISDN)**
SETUP1	→		→	SETUP2

5.2.2.6 CUG with preference + OAI

TSS CUG/originating_AS/CUG with preference + OAI	TP CUG_N06_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
CUG with preference + OAI: SETUP with CUG index, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
forwards a SETUP request containing a CUG element with
   CUG index.			

Preconditions: Originating user has subscribed to CUG
  Options for registered and preferred CUG index:
  Intra CUG restrictions: None designated (-OCB)
  Options for public identity in use:
  Preferential CUG: registered CUG
  Outgoing access: allowed permanent			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
    <CUGIndex>
 	
ISDN header values:
SETUP 2: (implementation option)
 	
Non CUG call
or
Facility CUGCallOperation invoke
    <CUGIndex>
    <OARequested>TRUE			

SIP header values: [1]
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>
 	
INVITE2 (Implementation option):
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>			

Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 → → INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 → → SETUP2			

TSS CUG/originating_AS/CUG with preference + OAI	TP CUG_N06_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6 AND PICS 4.7.1/10

Test purpose
CUG with preference + OAI and OCB: SETUP with CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
rejects the SETUP request by sending a DISCONNECT cause value No.29 due to Outgoing Communication Barring.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: OCB
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> DISCONNECT cause value No.29			

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>			

Comments:			
Test monitor equipment (Mw)		AS	
INVITE	➔		
603 Decline	⬅		
ACK	➔		

Comments:			
Test monitor equipment (ISDN)		AS	
SETUP	➔		
DISC cause value #29	⬅		
REL	➔		

TSS CUG/originating_AS/CUG with preference + OAI	TP CUG_N06_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
CUG with preference + OAI and OCB within CUG: SETUP SETUP with CUG index, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
forwards a SETUP request containing cug element is present.				

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: OCB within CUG
   Options for public identity in use:
   Preferential CUG: registered CUG
   Outgoing access: allowed permanent				

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> **ISDN header values:** SETUP 2: Non CUG call				
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug> INVITE2 (Implementation option): No element <cug>				
Comments: **Test monitor equipment (Mw)** **AS** INVITE1 ➔ ➔ INVITE2				
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2				

TSS CUG/originating_AS/CUG with preference + OAI	TP CUG_N06_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
CUG with preference + OAI: SETUP with unregistered CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      unregistered CUGIndex,
rejects the SETUP request by DISCONNECT cause value No.62 due to non allocated CUG index.			

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: registered CUG
   Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> **ISDN header values:** DISCONNECT cause value No. 62			
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[unregistered CUG]</cugIndex> </cugCallOperation> </cug> 403 Forbidden Reason: …			
Comments: **Test monitor equipment (Mw)** **AS** INVITE → 403 Forbidden ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #62 ← REL →			

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/CUG with preference + OAI		CUG_N06_005	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/6
Test purpose				
CUG with preference + OAI: SETUP with CUG index and outgoingAccessRequest = true, successful. Ensure that the SUT on receipt of a SETUP request containing a CUG element with <OARequested>TRUE <CUGIndex> forwards a SETUP request containing a CUG element with Facility CUGCallOperation invoke <OARequested>TRUE <CUGIndex>.				

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed permanent				

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE <CUGIndex> <OARequested>TRUE **ISDN header values:** SETUP 2: (implementation option) Non CUG call or Facility CUGCallOperation invoke <CUGIndex>				
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> <cugIndex>[registered CUG]</cugIndex> </cugCallOperation> </cug> INVITE2 (Implementation option): <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>				

Comments:				
Test monitor equipment (Mw)		**AS**		**Test monitor equipment (ISC, Mw)**
INVITE1	→		→	INVITE2
Comments:				
Test monitor equipment (ISDN)		**AS**		**Test monitor equipment (ISDN)**
SETUP1	→		→	SETUP2

TSS CUG/originating_AS/CUG with preference + OAI	TP CUG_N06_006	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6 AND PICS 4.7.1/10

Test purpose
CUG with preference + OAI and OCB: SETUP with CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
rejects the SETUP SETUP request by sending a DISCONNECT with cause value No.29 due to Outgoing Communication Barring.			

Preconditions: Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
Intra CUG restrictions: OCB
   Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE <CUGIndex> DISCONNECT with cause value No.29			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> <cugIndex>[registered CUG]</cugIndex> </cugCallOperation> </cug>			

Comments: **Test monitor equipment (Mw)**		AS	**Test monitor equipment (ISC, Mw)**
INVITE	→		
603 Decline	←		
ACK	→		

Comments: **Test monitor equipment (ISDN)**		AS	
SETUP	→		
DISC cause value #29	←		
REL	→		

TSS CUG/originating_AS/CUG with preference + OAI	TP CUG_N06_007	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
CUG with preference + OAI and OCB within CUG: SETUP with CUG index and outgoingAccessRequest = true, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        registered CUGIndex,
forwards a SETUP request containing no cug element is present.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
Intra CUG restrictions: OCB within CUG
    Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed permanent			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <OARequested>TRUE <CUGIndex> **ISDN header values:** SETUP 2: No Facility CUGCallOperation invoke <CUGIndex>			
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> <cugIndex>[registered CUG]</cugIndex> </cugCallOperation> </cug> INVITE2 (Implementation option): No element <cug>			
Comments: **Test monitor equipment (Mw)** **AS** **Test monitor equipment (ISC, Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

TSS CUG/originating_AS/CUG with preference + OAI		TP CUG_N06_008	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
CUG with preference + OAI: SETUP with unregistered CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true and
        unregistered CUGIndex,
rejects the SETUP request by sending DISCONNECT cause value No.29 due to not allocated CUG index.				

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: allowed permanent				

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>
 	
DISCONNECT with cause value No.29				

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[unregistered CUG]</cugIndex>
   </cugCallOperation>
</cug>
 	
403 Forbidden
   Reason: …				

Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ⬅ ACK ➔				
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #29 ⬅ REL ➔				

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/CUG with preference + OAI		CUG_N06_009	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
CUG with preference + OAI: SETUP without CUG index and with outgoingAccessRequest = true, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
cugCallOperation containing
outgoingAccessRequest = true,
forwards a SETUP request containing a CUG element with
cugInterlockBinaryCode related to preferred CUG index,
networkIndicator (PIXIT) and
cugCommunicationIndicator set to CUG with outgoing access.

Preconditions: Originating user has subscribed to CUG
Options for registered and preferred CUG index:
Intra CUG restrictions: None designated (-OCB)
Options for public identity in use:
Preferential CUG: registered CUG
Outgoing access: allowed permanent

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
<OARequested>TRUE
<CUGIndex>
ISDN header values:
SETUP 2:
Facility CUGCallOperation invoke
<CUGIndex>
<OARequested>TRUE

SIP header values:
INVITE1:
<cug>
<cugCallOperation>
<outgoingAccessRequest>TRUE</outgoingAccessRequest>
</cugCallOperation>
</cug>
INVITE2 (Implementation option):
<cug>
<networkIndicator >[PIXIT]</ networkIndicator>
<cugInterlockBinaryCode>[related to preferred CUG index]</cugInterlockBinaryCode>
<cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>

Comments:			
Test monitor equipment (Mw)	**AS**		**Test monitor equipment (ISC, Mw)**
INVITE1	→	→	INVITE2

Comments:			
Test monitor equipment (ISDN)	**AS**		**Test monitor equipment (ISDN)**
SETUP1	→	→	SETUP2

TSS CUG/originating_AS/CUG with preference + OAI	TP CUG_N06_010	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6 AND PICS 4.7.1/10

Test purpose
CUG with preference + OAI and OCB: SETUP without CUG index and with outgoingAccessRequest = true,
unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true,
rejects the SETUP request by sending DISCONNECT with cause value No.29 a due to Outgoing Communication
Barring.			

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: OCB
    Options for public identity in use:
    Preferential CUG: registered CUG
    Outgoing access: allowed permanent			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <OARequested>TRUE
      <CUGIndex>
 	
DISCONNECT with cause value No.29			

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

Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 603 Decline ⬅ ACK ➔			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #29 ⬅ REL ➔			

5.2.2.7   No CUG

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/No CUG		CUG_N07_001	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2
Test purpose *No CUG: SETUP with CUG index, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugCallOperation containing any CUGIndex, rejects the SETUP request by sending a DISCONNECT with cause value No.50.				
Preconditions: Originating user has **not** subscribed to CUG				
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE DISCONNECT with cause value No.50				
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[any CUG index]</cugIndex> </cugCallOperation> </cug> 403 Forbidden Reason: …				
Comments: **Test monitor equipment (Mw)** **AS** INVITE → 403 Forbidden ← ACK →				
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #50 ← REL →				

TSS		TP	CUG reference	Selection expression
CUG/originating_AS/No CUG		CUG_N07_002	ETSI TS 124 654 [1] clause 4.5.2.4	PICS 4.5.1/2

Test purpose
No CUG: SETUP with CUG index and outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      outgoingAccessRequest = true and
      any CUGIndex,
rejects the SETUP request by sending a DISCONNECT with cause value No.50.

Preconditions: Originating user has **not** subscribed to CUG

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>TRUE

DISCONNECT with cause value No.50

SIP header values:
INVITE:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>TRUE</outgoingAccessRequest>
      <cugIndex>[any CUG index]</cugIndex>
   </cugCallOperation>
</cug>

403 Forbidden
   Reason: …

Comments:
Test monitor equipment (Mw)		AS
INVITE	→	
403 Forbidden	←	
ACK	→	

Comments:
Test monitor equipment (ISDN)		AS
SETUP	→	
DISC cause value #50	←	
REL	→	

TSS CUG/originating_AS/No CUG		TP CUG_N07_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2

Test purpose
No CUG: SETUP without CUG index, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = false,
rejects the SETUP request by sending a DISCONNECT with cause value No.50.				

Preconditions: Originating user has **not** subscribed to CUG				
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE DISCONNECT with cause value No.50				
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> </cugCallOperation> </cug> 403 Forbidden Reason: …				
Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ← ACK ➔				
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #50 ← REL ➔				

TSS CUG/originating_AS/No CUG		TP CUG_N07_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.4	Selection expression PICS 4.5.1/2

Test purpose
No CUG: SETUP without CUG index and with outgoingAccessRequest = true, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        outgoingAccessRequest = true,
rejects the SETUP request by sending a DISCONNECT with cause value No.50.				

Preconditions: Originating user has **not** subscribed to CUG				
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE DISCONNECT with cause value No.50				
SIP header values: INVITE: <cug> <cugCallOperation> <outgoingAccessRequest>TRUE</outgoingAccessRequest> </cugCallOperation> </cug> 403 Forbidden Reason: …				
Comments: **Test monitor equipment (Mw)** **AS** INVITE ➔ 403 Forbidden ⬅ ACK ➔				
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #50 ⬅ REL ➔				

5.2.3 Actions at the AS of the terminating user

5.2.3.1 CUG with OA not allowed

TSS CUG/ terminating _AS/CUG with OA not allowed	TP CUG_N08_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose
CUG with IA not allowed: SETUP with interlock code matching registered CUG index and without outgoing access, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugInterlockBinaryCode related to registered CUG index,
    networkIndicator (PIXIT) and
    cugCommunicationIndicator set to "11" (CUG without outgoing access),
forwards a SETUP request containing no cug element in case of Gm interface, in case of an ISDN interface no cug element or as CUG call implementation dependent.			

Preconditions: Terminating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-ICB)
    Options for public identity in use:
    Incoming access: not allowed			

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <CUGIndex>
 	
ISDN header values:
SETUP 2: (implementation option)
 	
Non CUG call
or
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE			

SIP header values:
INVITE1:
<cug
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>
 	
INVITE2 (Implementation option):
No XML <cug> element
 	
or
 	
INVITE2 (Implementation option):
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>			

Comments:			
Test monitor equipment (ISC, Mw)	**AS**		**Test monitor equipment (Mw)**
INVITE1	→	→	INVITE2

Comments:			
Test monitor equipment (ISDN)	**AS**		**Test monitor equipment (ISDN)**
SETUP1	→	→	SETUP2

TSS CUG/ terminating _AS/CUG with OA not allowed	TP CUG_N08_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2
Test purpose *CUG with IA not allowed and ICB: SETUP with interlock code matching registered CUG index and without outgoing access, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugInterlockBinaryCode related to registered CUG index, networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access), rejects the SETUP request by sending a DISCONNECT with cause value No.55 due to incoming calls barred.			
Preconditions: Terminating user has subscribed to CUG **Options for registered CUG index:** Intra CUG restrictions: ICB **Options for public identity in use:** Incoming access: not allowed			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE DISCONNECT with cause value No.55.			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (ISC, Mw)** **AS** INVITE → 603 Decline ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #55 ← REL →			

TSS CUG/ terminating _AS/CUG with OA not allowed	TP CUG_N08_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2
Test purpose *CUG with IA not allowed: SETUP with interlock code not matching registered CUG index and without outgoing access, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugInterlockBinaryCode not related to registered CUG index, networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access), rejects the SETUP request by sending a DISCONNECT with cause value No.87 dueto not matched CUG index.			
Preconditions: Terminating user has subscribed to CUG **Options for public identity in use:** Incoming access: not allowed			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE DISCONNECT with cause value No.87			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[not related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (ISC, Mw)** **AS** INVITE ➔ 403 Forbidden ← ACK ➔			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #87 ← REL ➔			

TSS CUG/ terminating _AS/CUG with OA not allowed	TP CUG_N08_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose
CUG with IA allowed: SETUP with interlock code matching registered CUG index and without outgoing access, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugInterlockBinaryCode related to registered CUG index,
    networkIndicator (PIXIT) and
    cugCommunicationIndicator set to "11" (CUG without outgoing access),
forwards a SETUP request containing no cug element in case of Gm interface, in case of an ISDN Interface no cug element or as CUG call implementation dependent.			

Preconditions: Terminating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-ICB)
    Options for public identity in use:
    Incoming access: allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> **ISDN header values:** SETUP 2: (implementation option) Non CUG call or Facility CUGCallOperation invoke <CUGIndex> . <OARequested>FALSE			
SIP header values: INVITE1: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug> INVITE2 (Implementation option): No XML <cug> element Or <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			

Comments:			
Test monitor equipment (ISC, Mw)	**AS**		**Test monitor equipment (Mw)**
INVITE1	➔	➔	INVITE2

Comments:			
Test monitor equipment (ISDN)	**AS**		**Test monitor equipment (ISDN)**
SETUP1	➔	➔	SETUP2

TSS CUG/ terminating _AS/CUG with OA not allowed	TP CUG_N08_005	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2
Test purpose *CUG with IA allowed and ICB: SETUP with interlock code matching registered CUG index and without outgoing access, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugInterlockBinaryCode related to registered CUG index, networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access), rejects the SETUP request by sending a DISCONNECT with cause value No.55 due to incoming calls barred.			
Preconditions: Terminating user has subscribed to CUG **Options for registered CUG index:** Intra CUG restrictions: ICB **Options for public identity in use:** Incoming access: allowed			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE **ISDN header values:** DISCONNECT with cause value No.55			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (ISC, Mw)** **AS** INVITE → 603 Decline ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #55 ← REL →			

TSS CUG/ terminating _AS/CUG with OA not allowed	TP CUG_N08_006	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose

CUG with IA allowed: SETUP with interlock code not matching registered CUG index and without outgoing access, unsuccessful.

Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugInterlockBinaryCode not related to registered CUG index,
    networkIndicator (PIXIT) and
    cugCommunicationIndicator set to "11" (CUG without outgoing access),
rejects the SETUP request by sending DISCONNECT cause value No.87 due to not matched CUG index.

Preconditions: Terminating user has subscribed to CUG
    Options for public identity in use:
    Incoming access: allowed

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
       <CUGIndex>
       <OARequested>FALSE

DISCONNECT with cause value No.87

SIP header values:
INVITE:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[not related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>11</cugCommunicationIndicator>
</cug>

Comments:
Test monitor equipment (ISC, Mw)   **AS**
INVITE   ➔
403 Forbidden   ⬅
ACK   ➔

Comments:
Test monitor equipment (ISDN)   **AS**
SETUP   ➔
DISC cause value #87   ⬅
REL   ➔

TSS CUG/ terminating _AS/CUG with OA not allowed	TP CUG_N08_007	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2
Test purpose *No CUG: SETUP with interlock code and without outgoing access, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugInterlockBinaryCode, networkIndicator (PIXIT) and cugCommunicationIndicator set to "11" (CUG without outgoing access), rejects the SETUP request by sending a DISCONNECT with cause value No.87 due to 'Outgoing access not allowed'.			
Preconditions: Terminating user has not subscribed to CUG			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE DISCONNECT with cause value No.87			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to any CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>11</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (ISC, Mw)** **AS** INVITE → 403 Forbidden ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #87 ← REL →			

5.2.3.2 CUG with OA allowed

TSS CUG/ terminating _AS/CUG with OA allowed	TP CUG_N09_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose
CUG with IA not allowed: SETUP with interlock code matching registered CUG index and with outgoing access,
successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    registered CUG index,
    networkIndicator (PIXIT) and
    cugCommunicationIndicator set to "10" (CUG with outgoing access),
forwards a SETUP request containing no cug element in case of Gm interface, in case of an ISDN interface no cug
element or as CUG call implementation dependent.

Preconditions: Terminating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-ICB)
    Options for public identity in use:
    Incoming access: not allowed

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>TRUE
 	
ISDN header values:
SETUP 2: (implementation option)
 	
Non CUG call
or
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>TRUE

SIP header values:
INVITE1:
<cug>
   <networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>
</cug>
 	
INVITE2 (Implementation option):
No XML <cug> element
 	
or
 	
<networkIndicator >[PIXIT]</ networkIndicator>
   <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode>
   <cugCommunicationIndicator>10</cugCommunicationIndicator>

Comments: **Test monitor equipment Test monitor equipment (ISC, Mw)**	**AS**	**Test monitor equipment (Mw)**
INVITE1 →	→	INVITE2

Comments: **Test monitor equipment (ISDN)**	**AS**	**Test monitor equipment (ISDN)**
SETUP1 →	→	SETUP2

TSS CUG/ terminating _AS/CUG with OA allowed	TP CUG_N09_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2
Test purpose *CUG with IA not allowed and ICB: SETUP with interlock code matching registered CUG index and with outgoing access, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with registered CUG index, networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (CUG with outgoing access), rejects the SETUP request by sending a DISCONNECT with cause value No.55 due to incoming calls barred.			
Preconditions: Terminating user has subscribed to CUG **Options for registered CUG index:** Intra CUG restrictions: ICB **Options for public identity in use:** Incoming access: not allowed			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE DISCONNECT with cause value No.55			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (ISC, Mw)** **AS** INVITE ➔ 603 Decline ⬅ ACK ➔			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #55 ⬅ REL ➔			

TSS CUG/ terminating _AS/CUG with OA allowed	TP CUG_N09_003	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose
CUG with IA not allowed: SETUP with interlock code not matching registered CUG index and with outgoing access, unsuccessful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugInterlockBinaryCode not related to registered CUG index,
    networkIndicator (PIXIT) and
    cugCommunicationIndicator set to "10" (CUG with outgoing access),
rejects the SETUP request by sending DISCONNECT cause value No.55 due to not matched CUG index.			

Preconditions: Terminating user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE DISCONNECT with cause value No.55			
SIP header values: INVITE: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[not related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>			
Comments: **Test monitor equipment (ISC, Mw)** **AS** INVITE → 403 Forbidden ← ACK →			
Comments: **Test monitor equipment (ISDN)** **AS** SETUP → DISC cause value #55 ← REL →			

TSS CUG/ terminating _AS/CUG with OA allowed	TP CUG_N09_004	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose
CUG with IA allowed: SETUP with interlock code matching registered CUG index and with outgoing access, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugInterlockBinaryCode related to registered CUG index,
    networkIndicator (PIXIT) and
    cugCommunicationIndicator CUG with outgoing access,
forwards a SETUP request containing no cug element in case of Gm interface, in case of an ISDN interface no cug element or as CUG call implementation dependent.			

Preconditions: Terminating user has subscribed to CUG
    Options for registered CUG index:
    Intra CUG restrictions: None designated (-ICB)
    Options for public identity in use:
    Incoming access: allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE **ISDN header values:** SETUP 2: (implementation option) No Facility CUGCallOperation invoke or Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE			
SIP header values: INVITE1: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug> INVITE2 (Implementation option): No <cug> element or cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug>			

Comments: **Test monitor equipment (ISC, Mw)**		**AS**		**Test monitor equipment (Mw)**
INVITE1	→		→	INVITE2

Comments: **Test monitor equipment (ISDN)**		**AS**		**Test monitor equipment (ISDN)**
SETUP1	→		→	SETUP2

TSS CUG/ terminating _AS/CUG with OA allowed	TP CUG_N09_005	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose
CUG with IA allowed and ICB: SETUP with interlock code matching registered CUG index and with outgoing access, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
    cugInterlockBinaryCode related to registered CUG index,
    networkIndicator (PIXIT) and
    cugCommunicationIndicator set to CUG with outgoing access,
forwards a SETUP request containing no cug element.			

Preconditions: Terminating user has subscribed to CUG
    Options for registered CUG index:
Intra CUG restrictions: ICB
    Options for public identity in use:
Incoming access: allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE **ISDN header values:** SETUP 2: No Facility CUGCallOperation invoke			
SIP header values: INVITE1: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug> INVITE2: No <cug> element			
Comments: **Test monitor equipment (ISC, Mw)** **AS** **Test monitor equipment (Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

TSS CUG/ terminating _AS/CUG with OA allowed	TP CUG_N09_006	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2

Test purpose
CUG with IA allowed: SETUP with interlock code not matching registered CUG index and with outgoing access, successful.
Ensure that the SUT on receipt of a SETUP request containing a CUG element with
   cugInterlockBinaryCode not related to registered CUG index,
   networkIndicator (PIXIT) and
   cugCommunicationIndicator set to CUG with outgoing access,
forwards a SETUP request containing no cug element.			

Preconditions: Terminating user has subscribed to CUG
   Options for public identity in use:
   Incoming access: allowed			

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE **ISDN header values:** SETUP 2: No Facility CUGCallOperation invoke			
SIP header values: INVITE1: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[not related to registered CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug> INVITE2: No XML <cug> element			
Comments: **Test monitor equipment (ISC, Mw)** **AS** **Test monitor equipment (Mw)** INVITE1 ➔ ➔ INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 ➔ ➔ SETUP2			

TSS		TP	CUG reference	Selection expression
CUG/ terminating _AS/CUG with OA allowed		CUG_N09_007	ETSI TS 124 654 [1] clause 4.5.2.10	PICS 4.5.1/2
Test purpose *No CUG: SETUP with interlock code and with outgoing access, successful.* Ensure that the SUT on receipt of a SETUP request containing a CUG element with cugInterlockBinaryCode, networkIndicator (PIXIT) and cugCommunicationIndicator set to "10" (CUG with outgoing access), forwards a SETUP request containing no cug element.				
Preconditions: Terminating user has not subscribed to CUG				
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>TRUE **ISDN header values:** SETUP 2: No Facility CUGCallOperation invoke				
SIP header values: INVITE1: <cug> <networkIndicator >[PIXIT]</ networkIndicator> <cugInterlockBinaryCode>[related to any CUG index]</cugInterlockBinaryCode> <cugCommunicationIndicator>10</cugCommunicationIndicator> </cug> INVITE2: No XML <cug> element				
Comments: **Test monitor equipment (ISC, Mw)** INVITE1	➔	**AS** ➔	**Test monitor equipment (Mw)** INVITE2	
Comments: **Test monitor equipment (ISDN)** SETUP1	➔	**AS** ➔	**Test monitor equipment (ISDN)** SETUP2	

5.2.2.3 No CUG

TSS CUG/ terminating _AS/No CUG	TP CUG_N10_001	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2
Test purpose *CUG with IA not allowed: SETUP without cug element, unsuccessful.* Ensure that the SUT on receipt of a SETUP request containing no cug element, rejects the SETUP request by sending a DISCONNECT with cause value No.87.			
Preconditions: Terminating user has subscribed to CUG **Options for public identity in use:** Incoming access: not allowed			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex>			
ISDN header values: DISCONNECT with cause value No.87			
SIP header values: INVITE: No element <cug>			
Comments: **Test monitor equipment (ISC)** **AS** INVITE → 403 Forbidden ← ACK →			
Comments: **Test monitor equipment (ISC)** **AS** SETUP → DISC cause value #87 ← ACK →			

TSS CUG/ terminating _AS/No CUG	TP CUG_N10_002	CUG reference ETSI TS 124 654 [1] clause 4.5.2.10	Selection expression PICS 4.5.1/2
Test purpose *CUG with IA allowed: SETUP without cug element, successful.* Ensure that the SUT on receipt of a SETUP request containing no cug element, forwards a SETUP request containing no cug element.			
Preconditions: Terminating user has subscribed to CUG **Options for public identity in use:** Incoming access: allowed			
ISDN header values: SETUP 1: No Facility CUGCallOperation invoke			
ISDN header values: SETUP 2: No Facility CUGCallOperation invoke			
SIP header values: INVITE1: No xml element <cug> INVITE2: No XML <cug> element			
Comments: **Test monitor equipment (ISC, Mw)** **AS** **Test monitor equipment (Mw)** INVITE1 → → INVITE2			
Comments: **Test monitor equipment (ISDN)** **AS** **Test monitor equipment (ISDN)** SETUP1 → → SETUP2			

5.3 Interaction with other services

5.3.1 Conference calling (CONF/3PTY)

TSS CUG/Services/CONF	TP CUG_N11_001	CUG reference ETSI TS 124 654 [1] clause 4.6.6	Selection expression PICS 4.7.1/7
Test purpose *CUG with OA not allowed: First added conferee join the conference, successful.* Ensure that on receipt of a SETUP request containing a CUG element with cugCallOperation containing registered CUGIndex, the conference focus allows to join the created conference as the first conferee.			
Preconditions: Originating user has subscribed to CUG **Options for registered and preferred CUG index:** Intra CUG restrictions: None designated (-OCB) **Options for public identity in use:** Preferential CUG: None designated Outgoing access: not allowed			
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE			
SIP header values: INVITE: Request Line <conference URI> <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug>			
Comments: **Test monitor equipment (Mw)** **AS** **A conference is already created** INVITE → 200 OK ←			
Comments: **Test monitor equipment (Mw)** **AS** **A conference is already created** SETUP →			

TSS CUG/Services/CONF		TP CUG_N11_002	CUG reference ETSI TS 124 654 [1] clause 4.6.6	Selection expression PICS 4.7.1/7

Test purpose
CUG with OA not allowed: Subsequent conferee added to the conference, successful.
Ensure that on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
the conference focus allows to join the created conference as a subsequent conferee and belongs to the same Closed User Group.				

Preconditions: Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed				

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE				
SIP header values: INVITE: Request Line <conference URI> <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug>				

Comments:
Test monitor equipment (ISC, Mw)   **AS**
              A conference is already created
       A CUG user is already added to the conference
INVITE   ➔
200 OK ⬅				

Comments:
Test monitor equipment (ISDN)   **AS**
              A conference is already created
       A CUG user is already added to the conference
SETUP ➔				

5.3.2   Communication DIVersion service (CDIV)

TSS CUG/Services/CDIV		TP CUG_N12_001	CUG reference ETSI TS 124 654 [1] clause 4.6.7.1	Selection expression PICS 4.7.1/8

Test purpose
CUG with OA not allowed: Call setup between originating party and forwarding party, CFU successful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party and the forwarding party and performs the
Communication Diversion Service CFU.				

Preconditions:
Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding Unconditional (CFU)
Originating party and forwarding party are in the same CUG				

ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE				
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug>				
Comments: **Test monitor equipment (Mw)** INVITE1	**AS** ➔	➔	**Test monitor equipment (ISC, Mw)** INVITE2	
Comments: **Test monitor equipment (ISDN)** SETUP1	**AS** ➔	➔	**Test monitor equipment (ISDN)** SETUP2	

TSS CUG/Services/CDIV		TP CUG_N12_002	CUG reference ETSI TS 124 654 [1] clause 4.6.7.1	Selection expression PICS 4.7.1/8

Test purpose
CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFU successful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFU)
and the communication to the forwarded-to party is successful.				

Preconditions:
Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding Unconditional (CFU)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in the same CUG				

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
     \<CUGIndex>
     \<OARequested>FALSE				

SIP header values:
INVITE1:
\<cug>
   \<cugCallOperation>
     \<outgoingAccessRequest>FALSE\</outgoingAccessRequest>
     \<cugIndex>[registered CUG index]\</cugIndex>
   \</cugCallOperation>
\</cug>				

Comments: **Test monitor equipment (Mw)** INVITE1	→	**AS** →	**Test monitor equipment (Mw)** INVITE2	
Comments: **Test monitor equipment (ISDN** SETUP1	→	**AS** →	**Test monitor equipment (ISDN)** SETUP2	

TSS CUG/Services/CDIV		TP CUG_N12_003	CUG reference ETSI TS 124 654 [1] clause 4.6.7.1	Selection expression PICS 4.7.1/8
Test purpose				

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFU unsuccessful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFU)
and the communication to the forwarded-to party is unsuccessful. The SUT rejects the SETUP request by sending a
DISCONNECT with cause value No.87 due to not matched CUG data.				

Preconditions:				

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding Unconditional (CFU)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in different CUG				

ISDN header values:				

SETUP 1:
Facility CUGCallOperation invoke
      \<CUGIndex>
      \<OARequested>FALSE
 	
DISCONNECT with cause value No.87				

SIP header values:				

INVITE1:
\<cug>
   \<cugCallOperation>
      \<outgoingAccessRequest>FALSE\</outgoingAccessRequest>
      \<cugIndex>[registered CUG index]\</cugIndex>
   \</cugCallOperation>
\</cug>				

Comments: **Test monitor equipment (Mw)** **AS** INVITE1 ➔ 403 Forbidden ⬅ ACK ➔				
Comments: **Test monitor equipment (ISDN)** **AS** SETUP ➔ DISC cause value #87 ⬅ REL ➔				

TSS CUG/Services/CDIV	TP CUG_N12_004	CUG reference ETSI TS 124 654 [1] clause 4.6.7.2	Selection expression PICS 4.7.1/8

Test purpose
CUG with OA not allowed: Call setup between originating party and forwarding party, CFB successful.
Ensure that on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
the SUT checks the CUG restrictions for the originating party and the forwarding party and performs the
Communication Diversion Service CFB.

Preconditions:
Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed
Forwarding user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Forwarding user has subscribed to CDIV
    Communication Forwarding on Busy user (CFB)
Originating party and forwarding party are in the same CUG

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
        <CUGIndex>
        <OARequested>FALSE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments: Test monitor equipment (Mw)	AS		Test monitor equipment (Mw)		Test monitor equipment (ISC, Mw)
INVITE1	→	→	INVITE2		
		←	486 Busy Here		
		→	ACK		
		→		→	INVITE3

Comments: Test monitor equipment (ISDN)	AS		Test monitor equipment (Mw)		Test monitor equipment (ISDN)
SETUP1	→	→	INVITE2		
		←	486 Busy Here		
		→	ACK		
		→		→	SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_005	CUG reference ETSI TS 124 654 [1] clause 4.6.7.2	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFB successful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFB)
and the communication to the forwarded-to party is successful.

Preconditions:

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding on Busy user (CFB)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in the same CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE

SIP header values:

INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)	AS	Test monitor equipment (Mw)	Test monitor equipment (Mw)
INVITE1	→	→ INVITE2 ← 486 Busy Here → ACK	
			→ INVITE3

Comments:

Test monitor equipment (ISDN)	AS	Test monitor equipment (Mw)	Test monitor equipment (ISDN)
SETUP1	→	→ INVITE2 ← 486 Busy Here → ACK	
			→ SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_006	CUG reference ETSI TS 124 654 [1] clause 4.6.7.2	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFB unsuccessful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFB)
and the communication to the forwarded-to party is unsuccessful. The SUT rejects the SETUP request by sending a
DISCONNECT with cause value No.87 due to not matched CUG data.

Preconditions:

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding on Busy user (CFB)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in different CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE

DISCONNECT with cause value No.87

SIP header values:

INVITE1:
<cug>
  <cugCallOperation>
    <outgoingAccessRequest>FALSE</outgoingAccessRequest>
    <cugIndex>[registered CUG index]</cugIndex>
  </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)		AS		Test monitor equipment (Mw)
INVITE1	→		→	INVITE2
			←	486 Busy Here
			→	ACK
403 Forbidden	←			
ACK	→			

Comments:

Test monitor equipment (ISDN)		AS		Test monitor equipment (Mw)
SETUP	→		→	INVITE2
			←	486 Busy Here
			→	ACK
DISC cause value #87	←			
REL	→			

TSS CUG/Services/CDIV		TP CUG_N12_007	CUG reference ETSI TS 124 654 [1] clause 4.6.7.3	Selection expression PICS 4.7.1/8

Test purpose
CUG with OA not allowed: Call setup between originating party and forwarding party, CFNR successful.
Ensure that on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
the SUT checks the CUG restrictions for the originating party and the forwarding party and performs the
Communication Diversion Service CFNR.

Preconditions:
Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed
Forwarding user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Forwarding user has subscribed to CDIV
    Communication Forwarding on no Reply (CFNR)
Originating party and forwarding party are in the same CUG

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
        <CUGIndex>

SIP header values:
INVITE1:
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
        <cugIndex>[registered CUG index]</cugIndex>
    </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)		AS		Test monitor equipment (Mw)		Test monitor equipment (ISC, Mw)
INVITE1	→		→	INVITE2		
			←	180 Ringing		
					→	INVITE3

Comments:

Test monitor equipment (ISDN)		AS		Test monitor equipment (Mw)		Test monitor equipment (ISDN)
SETUP1	→		→	INVITE2		
			←	180 Ringing		
					→	SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_008	CUG reference ETSI TS 124 654 [1] clause 4.6.7.3	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFNR successful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFNR)
and the communication to the forwarded-to party is successful.

Preconditions:

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding on no Reply (CFNR)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in the same CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE

SIP header values:

INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments: Test monitor equipment (Mw)	AS	Test monitor equipment (Mw)	Test monitor equipment (Mw)
INVITE1	→	→ INVITE2 ← 180 Ringing	
			→ INVITE3

Comments: Test monitor equipment (ISDN)	AS	Test monitor equipment (Mw)	Test monitor equipment (ISDN)
SETUP1	→	→ INVITE2 ← 180 Ringing	
			→ SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_009	CUG reference ETSI TS 124 654 [1] clause 4.6.7.3	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFNR unsuccessful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFNR)
and the communication to the forwarded-to party is unsuccessful. The SUT rejects the SETUP request by sending a
DISCONNECT with cause value No.87 due to not matched CUG data.

Preconditions:

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding on No Reply (CFNR)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in different CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
       <CUGIndex>
       <OARequested>FALSE

DISCONNECT with cause value No.87

SIP header values:

INVITE1:
<cug>
  <cugCallOperation>
    <outgoingAccessRequest>FALSE</outgoingAccessRequest>
    <cugIndex>[registered CUG index]</cugIndex>
  </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)		AS		Test monitor equipment (Mw)
INVITE1	→		→	INVITE2
			←	180 Ringing
403 Forbidden	←			
ACK	→			

Comments:

Test monitor equipment (ISDN)		AS		Test monitor equipment (Mw)
SETUP1	→		→	INVITE2
			←	180 Ringing
DISC cause value #87	←			
REL	→			

TSS CUG/Services/CDIV		TP CUG_N12_010	CUG reference ETSI TS 124 654 [1] clause 4.6.7.4	Selection expression PICS 4.7.1/8
Test purpose *CUG with OA not allowed: Call setup between originating party and forwarding party, CFNL successful.* Ensure that on receipt of a SETUP request containing a CUG element with cugCallOperation containing registered CUGIndex, the SUT checks the CUG restrictions for the originating party and the forwarding party and performs the Communication Diversion Service CFNL.				
Preconditions: Originating user has subscribed to CUG **Options for registered and preferred CUG index:** Intra CUG restrictions: None designated (-OCB) **Options for public identity in use:** Preferential CUG: None designated Outgoing access: not allowed Forwarding user has subscribed to CUG **Options for public identity in use:** Incoming access: not allowed Forwarding user has subscribed to CDIV Communication Forwarding on Not Logged-in (CFNL) Originating party and forwarding party are in the same CUG				
ISDN header values: SETUP 1: Facility CUGCallOperation invoke <CUGIndex> <OARequested>FALSE				
SIP header values: INVITE1: <cug> <cugCallOperation> <outgoingAccessRequest>FALSE</outgoingAccessRequest> <cugIndex>[registered CUG index]</cugIndex> </cugCallOperation> </cug>				
Comments: **Test monitor equipment (Mw)** INVITE1	**AS** ➔ ➔		**Test monitor equipment (ISC, Mw)** INVITE2	
Comments: **Test monitor equipment (ISDN)** SETUP1	**AS** ➔ ➔		**Test monitor equipment (ISDN)** SETUP2	

TSS CUG/Services/CDIV		TP CUG_N12_011	CUG reference ETSI TS 124 654 [1] clause 4.6.7.4	Selection expression PICS 4.7.1/8

Test purpose
CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFNL successful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFNL)
and the communication to the forwarded-to party is successful.

Preconditions:
Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding on Not Logged-in (CFNL)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in the same CUG

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
     <CUGIndex>
     <OARequested>FALSE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
     <outgoingAccessRequest>FALSE</outgoingAccessRequest>
     <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments: **Test monitor equipment (Mw)**		**AS**	**Test monitor equipment (Mw)**
INVITE1	➔		
		➔	INVITE2

Comments: **Test monitor equipment (ISDN)**		**AS**	**Test monitor equipment (ISDN)**
SETUP1	➔		
		➔	SETUP2

TSS CUG/Services/CDIV	TP CUG_N12_012	CUG reference ETSI TS 124 654 [1] clause 4.6.7.4	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFNL unsuccessful.
Ensure that on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFNL)
and the communication to the forwarded-to party is unsuccessful. The SUT rejects the SETUP request by sending a
DISCONNECT with cause value No.87 due to not matched CUG data.

Preconditions:

Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed
Forwarding user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Forwarding user has subscribed to CDIV
    Communication Forwarding on Not Logged-in (CFNL)
Forwarded-to user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in different CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
        <CUGIndex>
        <OARequested>FALSE
 	
DISCONNECT with cause value No.87

SIP header values:

INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments: **Test monitor equipment (Mw)**		**AS**
INVITE1	→	
403 Forbidden	←	
ACK	→	

Comments: **Test monitor equipment (Mw)**		**AS**
INVITE1	→	
DISC cause value #87	←	
REL	→	

TSS CUG/Services/CDIV		**TP** CUG_N12_013	**CUG reference** ETSI TS 124 654 [1] clause 4.6.7.5	**Selection expression** PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarding party, CNRc successful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party and the forwarding party and performs the
Communication Diversion Service CFNRc.

Preconditions:

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding on Subscriber Not Reachable (CFNRc)
Originating party and forwarding party are in the same CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
     <CUGIndex>
     <OARequested>FALSE

SIP header values:

INVITE1:
<cug>
   <cugCallOperation>
     <outgoingAccessRequest>FALSE</outgoingAccessRequest>
     <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments: **Test monitor equipment (Mw)**		**AS**		**Test monitor equipment (Mw)**	**Test monitor equipment (ISC, Mw)**
INVITE1	→		→	INVITE2	
					→ INVITE3

Comments: **Test monitor equipment (ISDN)**		**AS**		**Test monitor equipment (Mw)**	**Test monitor equipment (ISDN)**
SETUP1	→		→	INVITE2	
					→ SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_014	CUG reference ETSI TS 124 654 [1] clause 4.6.7.5	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFNRc successful.
Ensure that on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFNRc) and the communication to the forwarded-to party is successful.

Preconditions:

Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed
Forwarding user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Forwarding user has subscribed to CDIV
    Communication Forwarding on Subscriber Not Reachable (CFNRc)
Forwarded-to user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in the same CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
        <CUGIndex>
        <OARequested>FALSE

SIP header values:

INVITE1:
<cug>
    <cugCallOperation>
        <outgoingAccessRequest>FALSE</outgoingAccessRequest>
        <cugIndex>[registered CUG index]</cugIndex>
    </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)	AS	Test monitor equipment (Mw)	Test monitor equipment (Mw)
INVITE1	→	INVITE2	
			→ INVITE3

Comments:

Test monitor equipment (ISDN)	AS	Test monitor equipment (Mw)	Test monitor equipment (ISDN)
SETUP1	→ →	INVITE2	
			→ SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_015	CUG reference ETSI TS 124 654 [1] clause 4.6.7.5	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and forwarded-to party, CFNRc unsuccessful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
     registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the forwarding party and the forwarded-to party (CFNRc)
and the communication to the forwarded-to party is unsuccessful. The SUT rejects the SETUP request by sending a
DISCONNECT with cause value No.87 due to not matched CUG data.

Preconditions:

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Forwarding user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Forwarding user has subscribed to CDIV
   Communication Forwarding on Subscriber Not Reachable (CFNRc)
Forwarded-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and forwarding party are in the same CUG
Originating party and forwarded-to party are in different CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
       <CUGIndex>
       <OARequested>FALSE

SIP header values:

INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)	AS	Test monitor equipment (Mw)	Test monitor equipment (Mw)
INVITE1	→	INVITE2	
403 Forbidden	←		
ACK	→		

Comments:

Test monitor equipment (ISDN)	AS	Test monitor equipment (Mw)	Test monitor equipment (Mw)
SETUP1	→	INVITE2	
DISC cause value #87	←		
REL	→		

TSS CUG/Services/CDIV		TP CUG_N12_016	CUG reference ETSI TS 124 654 [1] clause 4.6.7.6	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and deflecting party, CD successful.

Ensure that on receipt of a SETUP request containing a CUG element with

    cugCallOperation containing

        registered CUGIndex,

the SUT checks the CUG restrictions for the originating party and the deflecting party and performs the Communication Diversion Service CD.

Preconditions:

Originating user has subscribed to CUG

    Options for registered and preferred CUG index:

    Intra CUG restrictions: None designated (-OCB)

    Options for public identity in use:

    Preferential CUG: None designated

    Outgoing access: not allowed

Forwarding user has subscribed to CUG

    Options for public identity in use:

    Incoming access: not allowed

Deflecting user has subscribed to CDIV

    Communication Deflection (CD)

Originating party and deflecting party are in the same CUG

ISDN header values:

SETUP 1:

Facility CUGCallOperation invoke

        <CUGIndex>

        <OARequested>FALSE

SIP header values:

INVITE1:

<cug>

   <cugCallOperation>

      <outgoingAccessRequest>FALSE</outgoingAccessRequest>

      <cugIndex>[registered CUG index]</cugIndex>

   </cugCallOperation>

</cug>

Comments: Test monitor equipment (Mw)	AS	Test monitor equipment (Mw)	Test monitor equipment (ISC, Mw)
INVITE1	→	→ INVITE2	
		← 180 Ringing	
		← 302 Moved Temporarily	
		→ ACK	
			→ INVITE3

Comments: Test monitor equipment (ISDN)	AS	Test monitor equipment (Mw)	Test monitor equipment (ISDN)
SETUP1	→	→ INVITE2	
		← 180 Ringing	
		← 302 Moved Temporarily	
		→ ACK	
			→ SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_017	CUG reference ETSI TS 124 654 [1] clause 4.6.7.6	Selection expression PICS 4.7.1/8

Test purpose
CUG with OA not allowed: Call setup between originating party and forwarded-to party, CD successful.
Ensure that on receipt of a SETUP request containing a CUG element with
    cugCallOperation containing
        registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the deflecting party and the deflected-to party (CD) and
the communication to the deflected-to party is successful.

Preconditions:
Originating user has subscribed to CUG
    Options for registered and preferred CUG index:
    Intra CUG restrictions: None designated (-OCB)
    Options for public identity in use:
    Preferential CUG: None designated
    Outgoing access: not allowed
Deflecting user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Deflected-to user has subscribed to CUG
    Options for public identity in use:
    Incoming access: not allowed
Originating party and deflecting party are in the same CUG
Originating party and deflected-to party are in the same CUG

ISDN header values:
SETUP 1:
Facility CUGCallOperation invoke
        <CUGIndex>
        <OARequested>FALSE

SIP header values:
INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)	AS	Test monitor equipment (Mw)	Test monitor equipment (Mw)
INVITE1	→	→ INVITE2	
		← 180 Ringing	
		← 302 Moved Temporarily	
		→ ACK	
			→ INVITE3

Comments:

Test monitor equipment (ISDN)	AS	Test monitor equipment (Mw)	Test monitor equipment (ISDN)
SETUP1	→	→ INVITE2	
		← 180 Ringing	
		← 302 Moved Temporarily	
		→ ACK	
			→ SETUP3

TSS CUG/Services/CDIV		TP CUG_N12_018	CUG reference ETSI TS 124 654 [1] clause 4.6.7.6	Selection expression PICS 4.7.1/8

Test purpose

CUG with OA not allowed: Call setup between originating party and deflected-to party, CD unsuccessful.
Ensure that on receipt of a SETUP request containing a CUG element with
   cugCallOperation containing
      registered CUGIndex,
the SUT checks the CUG restrictions for the originating party, the deflecting party and the deflected-to party (CD) and the communication to the deflected-to party is unsuccessful. The SUT rejects the SETUP request by sending a DISCONNECT with cause value No.87 due to not matched CUG data.

Preconditions:

Originating user has subscribed to CUG
   Options for registered and preferred CUG index:
   Intra CUG restrictions: None designated (-OCB)
   Options for public identity in use:
   Preferential CUG: None designated
   Outgoing access: not allowed
Deflecting user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
deflected-to user has subscribed to CUG
   Options for public identity in use:
   Incoming access: not allowed
Originating party and deflecting party are in the same CUG
Originating party and deflected-to party are in different CUG

ISDN header values:

SETUP 1:
Facility CUGCallOperation invoke
      <CUGIndex>
      <OARequested>FALSE

DISCONNECT with cause Value No.87

SIP header values:

INVITE1:
<cug>
   <cugCallOperation>
      <outgoingAccessRequest>FALSE</outgoingAccessRequest>
      <cugIndex>[registered CUG index]</cugIndex>
   </cugCallOperation>
</cug>

Comments:

Test monitor equipment (Mw)		AS		Test monitor equipment (Mw)
INVITE1	→		→	INVITE2
			←	180 Ringing
			←	302 Moved Temporarily
			→	ACK
403 Forbidden	←			
ACK	→			

Comments:

Test monitor equipment (ISDN)		AS		Test monitor equipment (Mw)
SETUP1	→		→	INVITE2
			←	180 Ringing
			←	302 Moved Temporarily
			→	ACK
DISC cause value #87	←			
REL	→			

History

Document history		
V1.1.1	April 2023	Publication