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TECHNICAL SPECIFICATION

**Core Network and Interoperability Testing (INT);
Explicit Communication Transfer (ECT) using
IP Multimedia (IM) Core Network (CN) subsystem;
Conformance Test Specification (3GPP™ Release 12);
Part 2: Test Suite Structure and Test Purposes (TSS&TP)**

Reference

RTS/INT-00152-2

Keywords

conformance, ECT, IMS, testing, TSS&TP

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00   Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

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

The present document is part 2 of a multi-part deliverable covering the Conformance Test Specification of Explicit Communication Transfer (ECT) using IP Multimedia (IM) Core Network (CN) subsystem, as identified below:

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

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

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 and Test Purposes (TSS&TP) for the protocol specification Explicit Communication Transfer (ECT) using IP Multimedia (IM) Core Network (CN) subsystem as defined in ETSI TS 124 629 [1] in compliance with the relevant requirements.

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 124 629: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Explicit Communication Transfer (ECT) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.629 Release 12)".

[2]   ETSI TS 101 594-1: "Core Network and Interoperability Testing (INT); Explicit Communication Transfer (ECT) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance Test Specification (3GPP ™ Release 12); Part 1: Protocol Implementation Conformance Statement (PICS)".

[3]   ETSI TS 124 628: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Common Basic Communication procedures using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.628 Release 12)".

2.2 Informative 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.

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

Not applicable.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 124 629 [1] apply.

## 3.2		Symbols

For the purposes of the present document, the symbols given in ETSI TS 124 629 [1] apply.

## 3.3		Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 629 [1] and the following apply:

ACR-CB	Anonymous Communication Rejection- Communication Barring
ISC	IM-CN Service Control
IUT	Implementation Under Test
NNI	Network Network Interface
PIXIT	Protocol Implementation eXtra Information for Testing
SIP	Session Initiation Protocol
SUT	System Under Test
TP	Test Purpose
UE	User Equipment
URI	Uniform Resource Identifier

# 4		Test Suite Structure (TSS) and configuration

## 4.1		Test Suite Structure

Netw		
	TransferorAS	ECT_N01_xxx
	TransfereeAS	ECT_N02_xxx

User	**Transferor**	ECT_U01_xxx
	Transferee	ECT_U02_xxx
	TransferTarget	ECT_U03_xxx

Interaction	**OIR**	ECT_N03_xxx
	ACR-CB	ECT_N04_xxx
	CONF	ECT_N05_xxx
	ECT	ECT_N06_xxx

Figure 4.1.1: Test suite structure

## 4.2		Configuration

The scope of the present document is to test the signalling and procedural aspects of the stage 3 requirements as described in ETSI TS 124 629 [1]. The stage 3 description respects the requirements to several network entities and also to requirements regarding to end devices. Therefore several interfaces (reference points) are addressed to satisfy the test of the different entities.

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

Testing of the Application Server: This entity is responsible to perform the service. Hence the ISC interface is the appropriate access point. Figure 4.2.1 points to this.
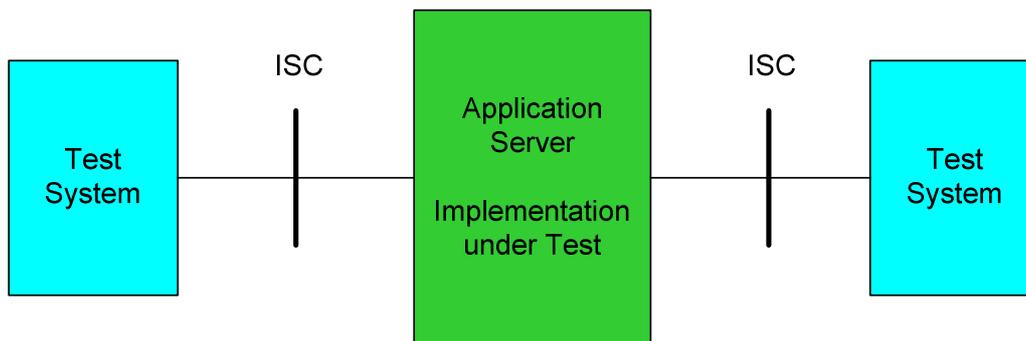
Figure 4.2.1: Applicable interface to test AS functionalities

If the ISC interface is not accessible it is also applicable to perform the test of the AS using any NNI (Mw, Mg, Mx) interface (consider figure 4.2.2). In case only the Gm interface is accessible this shall be used instead. In this case, be aware that the verification of several requirements is impeded.
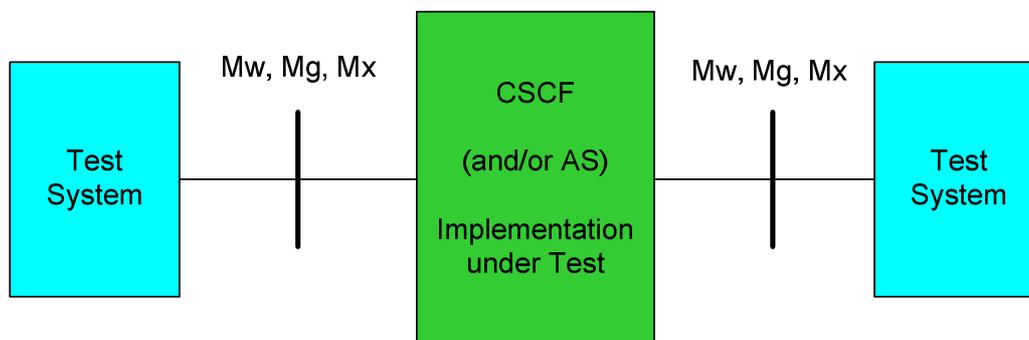
Figure 4.2.2: Applicable interfaces to test using the (generic) NNI interface

Figure 4.2.2 illustrates the usage of any NNI interface.

Testing of User Equipment: There are several requirements regarding to the end devices. Therefore a special configuration appears.
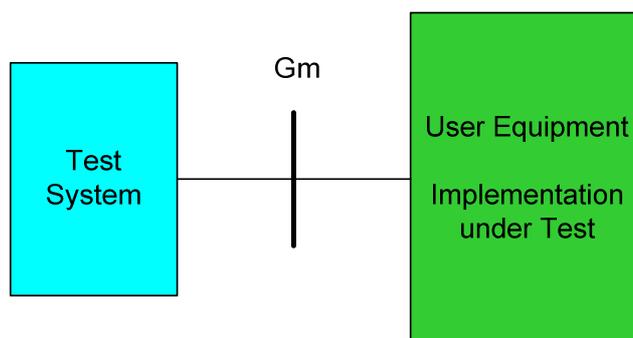
Figure 4.2.3: Applicable configuration to test the User Equipment

5   Test Purposes (TP)

5.1   Introduction

5.1.1   TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 5.1.1).

Table 5.1.1: TP identifier naming convention scheme

Identifier: **<ss>_<iut><group>_<nnn>**				
<ss>	=	supplementary service:	e.g. "ECT"	
<iut>	=	type of IUT:	U	User
			N	Network
<group>	=	group	2 digit field representing group reference according to TSS	
<nnn>	=	sequential number	(001-999)	

5.1.2   Test strategy

As the base standard ETSI TS 124 629 [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 101 594-1 [2].

5.2 Signalling requirements

5.2.1 Actions at the Transferor UE

TSS User/Transferor	TP ECT_U01_001	Reference 4.5.2.1	Selection expression PICS 4.5.1/1 AND PICS 4.6.1/1

Test purpose
The UE transfers a communication with a Transferee to the Transfer Target (Transferor, blind transfer).
Ensure that the UE is able to transfer a communication with the Transferee, optionally put on hold before, to the Transfer Target using the blind transfer method. The session with user Transferee is terminated before information about the progress of the transfer is received.

SIP header values:
REFER: Request URI: **Gm#2**
              Refer-To contains **Gm#3** URI, method=invite
              Referred-By contains **Gm#1** URI
          CASE Contact header of session #1 contains a GRUU
              Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of session #1>;
                      remote-tag=<To tag of session #1>

NOTIFY(100):Event contains **refer**
              message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
              message/sipfrag contains **SIP/2.0 200 OK**

Comments:
UE (Gm#1)   **Test equipment (Gm#2)**
                                          Establishment of session #1
CASE A
                        Session #1 on hold
REFER   →   REFER
2xx OK REFER   ←   2xx OK REFER

BYE   →   BYE
200 OK (BYE)   ←   200 OK (BYE)

NOTIFY(100)   ←   NOTIFY(100)
200 OK NOTIFY   →   200 OK NOTIFY

NOTIFY(200)   ←   NOTIFY(200)
200 OK NOTIFY   →   200 OK NOTIFY

CASE B
REFER   →   REFER
202 Accepted   ←   202 Accepted

BYE   →   BYE
200 OK (BYE)   ←   200 OK (BYE)

NOTIFY(100)   ←   NOTIFY(100)
200 OK NOTIFY   →   200 OK NOTIFY

NOTIFY(200)   ←   NOTIFY(200)
200 OK NOTIFY   →   200 OK NOTIFY

TSS User/Transferor	TP ECT_U01_002	Reference 4.5.2.1	Selection expression PICS 4.5.1/1 AND PICS 4.6.1/2

Test purpose
The UE transfers a communication with a Transferee to the Transfer Target (Transferor, assured transfer).
Ensure that the UE is able to transfer a communication with the Transferee, optionally put on hold before, to the Transfer Target using the assured transfer method. The session with Transferee is terminated after information about the progress of the transfer is received.

SIP header values:
REFER: Request URI: **Gm#2**
        Refer-To contains **Gm#3** URI; method=invite
        Referred-By contains **Gm#1** URI
     CASE Contact header of session #1 contains a GRUU
        Target-Dialog: <Call-ID of session #1 ;local-tag=<From tag of session #1>;
                remote-tag=<To tag of session #1>

NOTIFY(100):Event contains **refer**
        message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
        message/sipfrag contains **SIP/2.0 200 OK**

Comments:
UE (Gm#1)   **Test equipment (Gm#2)**
                            Establishment of session #1
CASE A
                   Session #1 on hold
REFER   ➔   REFER
2xx OK REFER   ←   2xx OK REFER

NOTIFY(100)   ←   NOTIFY(100)
200 OK NOTIFY   ➔   200 OK NOTIFY

INVITE(inactive/sendonly)   INVITE(inactive/sendonly)
200 OK INVITE(inactive/recvonly)   200 OK INVITE(inactive/recvonly)
ACK   ACK

NOTIFY(200)   ←   NOTIFY(200)
200 OK NOTIFY   ➔   200 OK NOTIFY

BYE   ➔   BYE
200 OK (BYE)   ←   200 OK (BYE)

CASE B
REFER   ➔   REFER
202 Accepted   ←   202 Accepted

NOTIFY(100)   ←   NOTIFY(100)
200 OK NOTIFY   ➔   200 OK NOTIFY

INVITE(inactive/sendonly)   INVITE(inactive/sendonly)
200 OK INVITE(inactive/recvonly)   200 OK INVITE(inactive/recvonly)
ACK   ACK

NOTIFY(200)   ←   NOTIFY(200)
200 OK NOTIFY   ➔   200 OK NOTIFY

BYE   ➔   BYE
200 OK (BYE)   ←   200 OK (BYE)

TSS	TP	Reference	Selection expression
User/Transferor	ECT_U01_003	4.5.2.1	PICS 4.5.1/1 AND PICS 4.6.1/3

Test purpose

The UE transfers a communication with a Transferee to the Transfer Target (Transferor, consultative transfer).
Ensure that the UE is able to transfer a communication with the Transferee, optionally put on hold before, to the
Transfer Target, having a session, optionally put on hold before, using the consultative transfer method. The
REFER request contains a replaces header escaped in the Refer-To header to request the termination of the
session between Transferor and Transfer Target (session #2).

SIP header values:

REFER: Request URI: **Gm#2**

   Refer-To: contains **Gm#3 URI;** method=invite?Replaces=**call-id1**%3B**to-tag**%3D**Session1**%3B
       from-tag%3D**Session1**& Require=replaces

   Referred-By contains **Gm#1** URI

   CASE Contact header of session #1 contains a GRUU

   Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of session #1>;
       remote-tag=<To tag of session #1>

NOTIFY(100):Event contains **refer**

   message/sipfrag contains **SIP/2.0 100 Trying**

NOTIFY(200):Event contains **refer**

   message/sipfrag contains **SIP/2.0 200 OK**

Comments:

UE (Gm#1)   **Test equipment (Gm#2)**

                         Establishment of session #1

             (Session #1 on hold)

                         Establishment of session #2

             (Session #2 on hold)

REFER   ➔   REFER

2xx OK REFER   ⬅   2xx OK REFER

CASE A

NOTIFY(100)   ⬅   NOTIFY(100)

200 OK NOTIFY   ➔   200 OK NOTIFY

NOTIFY(200)   ⬅   NOTIFY(200)

200 OK NOTIFY   ➔   200 OK NOTIFY

BYE #1   ➔   BYE

200 OK (BYE)   ⬅   200 OK (BYE)

BYE   ⬅   BYE #2

200 OK (BYE)   ➔   200 OK (BYE)

CASE B

NOTIFY(100)   ⬅   NOTIFY(100)

200 OK NOTIFY   ➔   200 OK NOTIFY

BYE   ⬅   BYE #2

200 OK (BYE)   ➔   200 OK (BYE)

NOTIFY(200)   ⬅   NOTIFY(200)

200 OK NOTIFY   ➔   200 OK NOTIFY

BYE #1   ➔   BYE

200 OK (BYE)   ⬅   200 OK (BYE)

TSS	TP	Reference	Selection expression
User/Transferor	ECT_U01_004	4.5.2.1	PICS 4.5.1/1 AND PICS 4.6.1/3 AND PICS 4.6.1/6

Test purpose

The UE transfers a communication with a Transferee to the Transfer Target (Transferor, consultative transfer).
Ensure that the UE is able to transfer a communication with the Transferee, optionally put on hold before, to the Transfer Target, having a session, optionally put on hold before, using the consultative transfer method. The REFER request contains a replaces header escaped in the Refer-To header to request the termination of the session between Transferor and Transfer Target (session #2).
If the transfer attempt is not completed, the transfer is terminated by sending a REFER request and the method parameter of the Refer-To is set to 'cancel'.

SIP header values:

REFER1: Request URI: **Gm#2**
 Refer-To: contains **Gm#3 URI;** method=invite?Replaces=**call-id1**%3B**to-tag**%3D**Session1**%3B
  from-tag%3D**Session1**& Require=replaces

NOTIFY(100):Event contains **refer**
 message/sipfrag contains **SIP/2.0 100 Trying**

REFER2: Request URI: **Gm#2**
 Refer-To: contains **Gm#3 URI;** method=**cancel**
 CASE Contact header of session #1 contains a GRUU
  Target-Dialog: <Call-ID of session #1 ;local-tag=<From tag of the session #1>;
   remote-tag=<To tag of the session #1>

Comments:

UE (Gm#1)   **Test equipment (Gm#2)**

             Establishment of session #1

       (Session #1 on hold)

             Establishment of session #2

       (Session #2 on hold)

REFER1	➔	REFER1
2xx OK REFER	←	2xx OK REFER

CASE A

NOTIFY(100)	←	NOTIFY(100)
200 OK NOTIFY	➔	200 OK NOTIFY

REFER2	➔	REFER
2xx OK REFER	←	2xx OK REFER

Apply post test routine

5.2.2   Actions at the Transferor AS

TSS	TP	Reference	Selection expression
Netw/TransferorAS	ECT_N01_001	4.5.2.4	PICS 4.5.1/2 AND PICS 4.7.1/2 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
Communication transfer: ***Assured transfer***. *Transferor was originator of the originating call.* Ensure that a Transferor can successfully transfer the communication with the transferee set on hold before and the Transferor is notified about the processing. After the communication between the Transferee and the Transfer Target is confirmed, the communication between Transferor and Transferee is terminated. The Transferor was the initiator of the originating communication.

SIP header values:

REFER 1: Refer-To contains **ISC#3** URI; method=invite
           Referred-By contains **ISC#1** URI
    CASE: Request received on a separate dialogue
        Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of the session #1e>;
                remote-tag=<To tag of the session #1>
    CASE: Request received on the same dialogue
        Call-ID: <session #1>
REFER 2: Refer-To contains **ECT Session Identifier** URI; method=invite
           Referred-By contains ISC#ISC#1 URI
INVITE 3: Request URI = **ECT Session Identifier** URI
INVITE 4: Request URI = **ISC#3** URI
NOTIFY(100):Event contains **refer**
           Subscription-State: **active;expires=(any value)**
           message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
           message/sipfrag contains **SIP/2.0 200 OK**
           Subscription-State: terminated;reason=noresource

Comments:

```
ISC#1                          AS Transferor        ISC#2                     ISC#3
                               Session #1

INVITE 1            →                        →       INVITE
180 Ringing         ←                        ←       180 Ringing
200 OK (INVITE)     ←                        ←       200 OK (INVITE)
ACK                 →                        →       ACK

INVITE 2 (sendonly) →                        →       INVITE (sendonly)
200 OK (recvonly)   ←                        ←       200 OK (recvonly)
ACK                 →                        →       ACK

REFER 1             →        REFER
                            REFER 2          →       REFER
                           2xx OK REFER      ←       2xx OK REFER
2xx OK REFER        ←      2xx OK REFER
INVITE (inactive)   ←                        →       INVITE (inactive)
200 OK (inactive)   →                        →       200 OK (inactive)
ACK                 ←                        ←       ACK

NOTIFY(100)         ←                        ←       NOTIFY(100)
200 OK NOTIFY       →                        →       200 OK NOTIFY
                            INVITE           ←       INVITE 3
                            INVITE 4         →                          →   INVITE
                           180 Ringing       ←                          ←   180 Ringing
                           180 Ringing       →       180 Ringing
                            200 OK           ←                          ←   200 OK
                            200 OK           →       200 OK
                                                          ACK           →   ACK
NOTIFY(200)         ←                        ←       NOTIFY(200)
200 OK NOTIFY       →                        →       200 OK NOTIFY
BYE                 →                        →       BYE
200 OK (BYE)        ←                        ←       200 OK (BYE)
                                                     Communication ISC#2 with ISC#3
                                Apply post test routine
```

TSS Netw/TransferorAS	TP ECT_N01_002	Reference 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose

*Communication transfer: **Assured transfer**. Transferee was originator of the originating call.*
Ensure that a Transferor can successfully transfer the communication with the transferee set on hold before and the Transferor is notified about the processing. After the communication between the Transferee and the Transfer Target is confirmed, the communication between Transferor and Transferee is terminated. The Transferee was the initiator of the originating communication.

SIP header values:

REFER 1: Refer-To contains **ISC#3** URI; method=invite
       Referred-By contains **ISC#1** URI
    CASE: Request received on a separate dialogue
       Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of the session #1e>;
                remote-tag=<To tag of the session #1>
    CASE: Request received on the same dialogue
       Call-ID: <session #1>
REFER 2: Refer-To contains **ECT Session Identifier** URI; method=invite
       Referred-By contains ISC#1 URI
INVITE 3: Request URI = **ECT Session Identifier** URI
INVITE 4: Request URI = **ISC#3** URI
NOTIFY(100):Event contains **refer**
       Subscription-State: **active;expires=(any value)**
       message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
       message/sipfrag contains **SIP/2.0 200 OK**
       Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor Session #1		ISC#2		ISC#3
INVITE	←		←	INVITE 1		
180 Ringing	→		→	180 Ringing		
200 OK (INVITE)	→		→	200 OK (INVITE)		
ACK	←		←	ACK		
INVITE 2 (sendonly)	→		→	INVITE (sendonly)		
200 OK (recvonly)	←		←	200 OK (recvonly)		
ACK	→		→	ACK		
REFER 1	→	REFER				
			→	REFER 2		
		2xx OK REFER	←	2xx OK REFER		
2xx OK REFER	←	2xx OK REFER				
INVITE (inactive)	←		←	INVITE (inactive)		
200 OK (inactive)	→		→	200 OK (inactive)		
ACK	←		←	ACK		
NOTIFY(100)	←		←	NOTIFY(100)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
		INVITE	←	INVITE 3		
		INVITE 4	→		→	INVITE
		180 Ringing	←		←	180 Ringing
		180 Ringing	→	180 Ringing		
		200 OK	←		←	200 OK
		200 OK	→	200 OK		
				ACK	→	ACK
NOTIFY(200)	←		←	NOTIFY(200)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
BYE	→		→	BYE		
200 OK (BYE)	←		←	200 OK (BYE)		
				Communication ISC#2 with ISC#3		
		Apply post test routine				

TSS Netw/TransferorAS	TP ECT_N01_003	Reference 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
*Communication transfer: **Blind transfer**. Transferor was originator of the originating call.*
Ensure that a Transferor can successfully transfer the communication with the transferee set on hold before and the Transferor is notified about the processing. After the REFER request to the Transferee is sent, the communication between Transferor and Transferee is terminated. The Transferor was the initiator of the originating communication.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
       Referred-By contains I**SC#1** URI
    CASE: Request received on a separate dialogue
       Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of the session #1e>;
              remote-tag=<To tag of the session #1>
    CASE: Request received on the same dialogue
       Call-ID: <session #1>
REFER 2: Refer-To contains **ECT Session Identifier** URI; method=invite
       Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ECT Session Identifier** URI
INVITE 4: Request URI = **ISC#3** URI
NOTIFY(100):Event contains **refer**
       Subscription-State: **active;expires=(any value)**
       message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
       message/sipfrag contains **SIP/2.0 200 OK**
       Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor Session #1		ISC#2		ISC#3
INVITE 1	→		→	INVITE		
180 Ringing	←		←	180 Ringing		
200 OK (INVITE)	←		←	200 OK (INVITE)		
ACK	→		→	ACK		
INVITE 2 (sendonly)	→		→	INVITE (sendonly)		
200 OK (recvonly)	←		←	200 OK (recvonly)		
ACK	→		→	ACK		
REFER 1	→	REFER				
		REFER 2	→	REFER		
		2xx OK REFER	←	2xx OK REFER		
2xx OK REFER	←	2xx OK REFER				
BYE	→		→	BYE		
200 OK (BYE)	←		←	200 OK (BYE)		
NOTIFY(100)	←		←	NOTIFY(100)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
		INVITE	←	INVITE 3		
		INVITE 4	→		→	INVITE
		180 Ringing	←		←	180 Ringing
		180 Ringing	→	180 Ringing		
		200 OK	←		←	200 OK
		200 OK	→	200 OK		
				ACK	→	ACK
NOTIFY(200)	←		←	NOTIFY(200)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
				Communication ISC#2 with ISC#3		
		Apply post test routine				

TSS Netw/TransferorAS	TP ECT_N01_004	Reference 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
*Communication transfer: **Blind transfer**. Transferee was originator of the originating call.*
Ensure that a Transferor can successfully transfer the communication with the transferee set on hold before and the Transferor is notified about the processing. After the REFER request to the Transferee is sent, the communication between Transferor and Transferee is terminated. The Transferee was the initiator of the originating communication.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
    CASE: Request received on a separate dialogue
      Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of the session #1e>;
             remote-tag=<To tag of the session #1>
    CASE: Request received on the same dialogue
      Call-ID: <session #1>
REFER 2: Refer-To contains **ECT Session Identifier** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ECT Session Identifier** URI
INVITE 4: Request URI = **ISC#3** URI
NOTIFY(100):Event contains **refer**
      Subscription-State: **active;expires=(any value)**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**
      Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor Session #1		ISC#2		ISC#3
INVITE	←		←	INVITE 1		
180 Ringing	→		→	180 Ringing		
200 OK (INVITE)	→		→	200 OK (INVITE)		
ACK	←		←	ACK		
INVITE 2 (sendonly)	→		→	INVITE (sendonly)		
200 OK (recvonly)	←		←	200 OK (recvonly)		
ACK	→		→	ACK		
REFER 1	→	REFER				
			→	REFER 2		
		2xx OK REFER	←	2xx OK REFER		
2xx OK REFER	←	2xx OK REFER				
BYE	→		→	BYE		
200 OK (BYE)	←		←	200 OK (BYE)		
NOTIFY(100)	←		←	NOTIFY(100)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
		INVITE	←	INVITE 3		
		INVITE 4	→		→	INVITE
		180 Ringing	←		←	180 Ringing
		180 Ringing	→	180 Ringing		
		200 OK	←		←	200 OK
		200 OK	→	200 OK		
				ACK	→	ACK
NOTIFY(200)	←		←	NOTIFY(200)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
				Communication ISC#2 with ISC#3		

Apply post test routine

TSS Netw/TransferorAS	TP ECT_N01_005	Reference 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
*Communication transfer: **Consultative transfer**. Transferor was originator of the originating call.*
Ensure that a Transferor can successfully transfer the communication with the transferee set on hold before and the Transferor is notified about the processing. The Transferor has a session with Transferee and the Transfer target set on hold. The Transferor refers the Transferee to establish a session to the Transfer target. After the successful session between Transferee and Transfer target, the sessions of the Transferor are released by the Transferor. The Transferor was the initiator of the originating communication.

SIP header values:
REFER 1: Refer-To contains **ISC#3 URI**; method=invite?Replaces=**call-id1**%3B**to-tag**%3D**S1**%3B
     from-tag%3D**S1**&Require=replaces
     Referred-By contains **ISC#1** URI
  CASE: Request received on a separate dialogue
     Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of the session #1e>;
        remote-tag=<To tag of the session #1>
     Call-ID: <separate dialogue>
  CASE: Request received on the same dialogue
     Call-ID: <session #1>
REFER 2: Refer-To contains **ECT Session Identifier URI**;method=invite
     Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ECT Session Identifier** URI   Referred-By contains **ISC#1** URI
INVITE 4: Request URI = **ISC#3** URI;
     Replaces: **call-id1**;**to-tag=S1**;**from-tag=S1**
     Require: replaces
     Referred-By contains **ISC#1** URI
NOTIFY(100):Event contains **refer**;
     Subscription-State: **active;expires=(any value)**
     message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**;
     message/sipfrag contains **SIP/2.0 200 OK**
     Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor Session #1		ISC#2		ISC#3
INVITE 1	→		→	INVITE		
180 Ringing	←		←	180 Ringing		
200 OK (INVITE)	←		←	200 OK (INVITE)		
ACK	→		→	ACK		
INVITE (sendonly)	→		→	INVITE (sendonly)		
200 OK (recvonly)	←		←	200 OK (recvonly)		
ACK	→		→	ACK		
		Session #2				
INVITE 2	→				→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
INVITE (sendonly)	→				→	INVITE (sendonly)
200 OK (recvonly)	←				←	200 OK (recvonly)
ACK	→				→	ACK
REFER 1	→	REFER				
		REFER 2	→	REFER		
		2xx OK REFER	←	2xx OK REFER		
2xx OK REFER	←	2xx OK REFER				
INVITE (inactive)	←		←	INVITE (inactive)		
200 OK (inactive)	→		→	200 OK (inactive)		
ACK	←		←	ACK		
NOTIFY(100)	←		←	NOTIFY(100)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
		INVITE	←	INVITE 3		
		INVITE 4	→		→	INVITE

TSS Netw/TransferorAS	TP ECT_N01_005	Reference 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

```
                          180 Ringing    ←                    ←   180 Ringing
                          180 Ringing    →   180 Ringing
                          200 OK         ←                    ←   200 OK
                          200 OK         →   200 OK
                                                       ACK  →   ACK
NOTIFY(200)        ←                    ←   NOTIFY(200)
200 OK NOTIFY      →                    →   200 OK NOTIFY

BYE                ←                                    ←   BYE
200 OK (BYE)       →                                    →   200 OK (BYE)

BYE                →                                    →   BYE
200 OK (BYE)       ←                                    ←   200 OK (BYE)
                                           Communication ISC#2 with ISC#3
                          Apply post test routine
```

TSS Netw/TransferorAS	TP ECT_N01_006	Reference 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
*Communication transfer: **Consultative transfer**. Transferee was originator of the originating call.*
Ensure that a Transferor can successfully transfer the communication with the transferee set on hold before and the Transferor is notified about the processing. The Transferor has a session with Transferee and the Transfer target. The Transferor refers the Transferee to establish a session to the Transfer target. After the successful session between Transferee and Transfer target set on hold, the sessions of the Transferor are released by the Transferor. The Transferee was the initiator of the originating communication.

SIP header values:
REFER 1: Refer-To contains **ISC#3 URI;** method=invite?Replaces=**call-id1**%3B
        to-tag%3D**S1**%3B**from-tag**%3D**S1**&Require=replaces
      Referred-By contains **ISC#1** URI
    CASE: Request received on a separate dialogue
      Target-Dialog: <Call-ID of session #1> ;local-tag=<From tag of the session #1e>;
             remote-tag=<To tag of the session #1>
    CASE: Request received on the same dialogue
      Call-ID: <session #1>
REFER 2: Refer-To contains **ECT Session Identifier URI;** method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ECT Session Identifier** URI
      Referred-By contains **ISC#1** URI
INVITE 4: Request URI = **ISC#3** URI
      Replaces=**call-id1**;**to-tag=S1**; **from-tag=S1**
      Require: replaces
      Referred-By contains **ISC#1** URI
NOTIFY(100):Event contains **refer**
      Subscription-State: **active;expires=(any value)**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**
      Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor Session #1	ISC#2	ISC#3
INVITE	←		← INVITE 1	
180 Ringing	→		→ 180 Ringing	
200 OK (INVITE)	→		→ 200 OK (INVITE)	
ACK	←		← ACK	
INVITE (sendonly)	→		→ INVITE (sendonly)	
200 OK (recvonly)	←		← 200 OK (recvonly)	
ACK	→		→ ACK	

TSS Netw/TransferorAS	TP ECT_N01_006	Reference 4.5.2.4	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Session #2

INVITE 2	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
INVITE (sendonly)	→		→	INVITE (sendonly)
200 OK (recvonly)	←		←	200 OK (recvonly)
ACK	→		→	ACK
REFER 1	→	REFER		
		→	REFER 2	
	2xx OK REFER	←	2xx OK REFER	
2xx OK REFER	←	2xx OK REFER		
INVITE (inactive)	←		←	INVITE (inactive)
200 OK (inactive)	→		→	200 OK (inactive)
ACK	←		←	ACK
NOTIFY(100)	←		←	NOTIFY(100)
200 OK NOTIFY	→		→	200 OK NOTIFY
	INVITE	←	INVITE 3	
	INVITE 4	→		→	INVITE
	180 Ringing	←		←	180 Ringing
	180 Ringing	→	180 Ringing	
	200 OK	←		←	200 OK
	200 OK	→	200 OK	
			ACK	→	ACK
NOTIFY(200)	←		←	NOTIFY(200)
200 OK NOTIFY	→		→	200 OK NOTIFY
BYE	←		←	BYE
200 OK (BYE)	→		→	200 OK (BYE)
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

Communication ISC#2 with ISC#3

Apply post test routine

TSS Netw/TransferorAS	TP ECT_N01_007	Reference 4.5.2.4.1.2.2	Selection expression PICS 4.5.1/2

Test purpose
The method in the Refer-To header is not the 'INVITE' method.
Ensure that the REFER request is rejected if the Method in the Refer-To header used in this dialogue is not the INVITE method e.g. BYE.

SIP header values:
REFER: Refer-To contains **ISC#3** URI; method=BYE
          Referred-By contains **ISC#1** URI

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
INVITE	→		→	INVITE	
180 Ringing	←		←	180 Ringing	
200 OK (INVITE)	←		←	200 OK (INVITE)	
ACK	→		→	ACK	
INVITE (sendonly)	→		→	INVITE (sendonly)	
200 OK (recvonly)	←		←	200 OK (recvonly)	
ACK	→		→	ACK	

ISC#1 transfers ISC#2 to ISC#3

REFER	→	REFER	
4xx or 5xx or 6xx Response	←	4xx or 5xx or 6xx Response	

Apply post test routine

TSS	TP ECT_N01_008	Reference 4.5.2.4.1.2.2	Selection expression PICS 4.5.1/2

Test purpose
The request-URI is not targeted at the same UE instance that is involved in the dialog.
Ensure that the ECT simulation service does not apply if the Request URI is not the Transferee URI. The REFER request is rejected.

SIP header values:
REFER: Request URI contained the **other URI (PIXIT)**
           Refer-To contains the URI of **ISC#3**, method=invite
           Referred-By contains SIP or tel URI of **ISC#1**

Comments:

ISC#1		AS Transferor		ISC#2	ISC#3
INVITE	→		→	INVITE	
180 Ringing	←		←	180 Ringing	
200 OK (INVITE)	←		←	200 OK (INVITE)	
ACK	→		→	ACK	
INVITE (sendonly)	→		→	INVITE (sendonly)	
200 OK (recvonly)	←		←	200 OK (recvonly)	
ACK	→		→	ACK	
REFER	→	REFER			
4xx or 5xx or 6xx Response	←	4xx or 5xx or 6xx Response			

Apply post test routine

TSS Netw/TransferorAS	TP ECT_N01_009	Reference 4.5.2.4.1.2.2	Selection expression PICS 4.5.1/2

Test purpose
There is no method parameter contained in the Refer-To header.
Ensure that the REFER request is rejected if there is no Method parameter contained in the Refer-To header.

SIP header values:
REFER: Refer-To To contains **ISC#3** URI (no method parameter)
           Referred-By contains **ISC#1** URI

Comments:

ISC#1		AS Transferor		ISC#2	ISC#3
INVITE	→		→	INVITE	
180 Ringing	←		←	180 Ringing	
200 OK (INVITE)	←		←	200 OK (INVITE)	
ACK	→		→	ACK	
INVITE (sendonly)	→		→	INVITE (sendonly)	
200 OK (recvonly)	←		←	200 OK (recvonly)	
ACK	→		→	ACK	
		ISC#1 transfers ISC#2 to ISC#3			
REFER	→	REFER			
4xx or 5xx or 6xx Response	←	4xx or 5xx or 6xx Response			

Apply post test routine

TSS Netw/TransferorAS	TP ECT_N01_010	Reference 4.5.2.4.2.3	Selection expression PICS 4.5.1/2 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
In the REFER request, the Referred-By header does not contain the valid identity of the served user.
A Referred-By header is available in the REFER request, the AS verifies if the provided Referred-By header contains a valid identity of the served user. If not it will replace the Referred-By header with a valid value matching the REFER request's P-Asserted-Identity.

SIP header values:
REFER 1: Request URI: **ISC#2**
      Referred-By contains **ISC#x** URI (PIXIT any value)
      P-Asserted-Identity=**ISC#1**REFER 1:   Request URI: **ISC#2**
      Referred-By contains **ISC#1** URI

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
		Establishment of session #2			
		Session #2 on hold			
		ISC#1 transfers ISC#2 to ISC#3			
REFER 1	➔	REFER			
		REFER 2 ➔	REFER		
		2xx OK REFER ⬅	2xx OK REFER		
2xx OK REFER	⬅	2xx OK REFER			
INVITE (inactive)	⬅		⬅	INVITE (inactive)	
200 OK (inactive)	➔		➔	200 OK (inactive)	
ACK	⬅		⬅	ACK	
NOTIFY(100)	⬅		⬅	NOTIFY(100)	
200 OK NOTIFY	➔		➔	200 OK NOTIFY	
		INVITE ⬅	INVITE 3		
		INVITE 4 ➔		➔	INVITE
		180 Ringing ⬅		⬅	180 Ringing
		180 Ringing ➔	180 Ringing		
		200 OK ⬅		⬅	200 OK
		200 OK ➔	200 OK		
				ACK ➔	ACK
NOTIFY(200)	⬅		⬅	NOTIFY(200)	
200 OK NOTIFY	➔		➔	200 OK NOTIFY	
BYE	➔		➔	BYE	
200 OK (BYE)	⬅		⬅	200 OK (BYE)	
		Apply post test routine			

TSS Netw/TransferorAS	TP ECT_N01_011	Reference 4.5.2.4.2.3	Selection expression PICS 4.5.1/2 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
*The **REFER** request does not contain a Referred-By header.*
If no Referred-By header is available in the REFER request a Referred-By header is added that matches the REFER method's P-Asserted-Identity.

SIP header values:
REFER 1: Request URI: **ISC#2**
      Referred-By not present
      P-Asserted-Identity=**ISC#1**
REFER 1: Request URI: **ISC#2**
      Referred-By contains **ISC#1** URI

Comments:

ISC#1		AS Transferor	ISC#2	ISC#3
		Establishment of session #1		
		Session #1 on hold		
		Establishment of session #2		
		Session #2 on hold		
		ISC#1 transfers ISC#2 to ISC#3		
REFER 1	➔	REFER		
		REFER 2 ➔	REFER	
		2xx OK REFER ⬅	2xx OK REFER	
2xx OK REFER	⬅	2xx OK REFER		
INVITE (inactive)	⬅		⬅ INVITE (inactive)	
200 OK (inactive)	➔		➔ 200 OK (inactive)	
ACK	⬅		⬅ ACK	
NOTIFY(100)	⬅		⬅ NOTIFY(100)	
200 OK NOTIFY	➔		➔ 200 OK NOTIFY	
		INVITE ⬅	INVITE 3	
		INVITE 4 ➔		➔ INVITE
		180 Ringing ⬅		⬅ 180 Ringing
		180 Ringing ➔	180 Ringing	
		200 OK ⬅		⬅ 200 OK
		200 OK ➔	200 OK	
			ACK ➔	ACK
NOTIFY(200)	⬅		⬅ NOTIFY(200)	
200 OK NOTIFY	➔		➔ 200 OK NOTIFY	
BYE	➔		➔ BYE	
200 OK (BYE)	⬅		⬅ 200 OK (BYE)	
		Apply post test routine		

TSS Netw/TransferorAS	TP ECT_N01_012	Reference 4.5.2.4.2.1	Selection expression PICS 4.5.1/2 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose

*The Referred-By header in the received **INVITE** does not contain the valid identity of the served user.*

If a Referred-By header is available in the INVITE request, the AS verifies if the provided Referred-By header contains a valid identity of the served user. If not it will replace the Referred-By header with a valid value matching the REFER request's P-Asserted-Identity.

SIP header values:

REFER 1: Refer-To contains **ISC#3** URI; method=invite
      P-Asserted-Identity=**ISC#1**

INVITE 3: Request URI = **ECT Session Identifier** URI
      Referred-By contains **ISC#x** URI (PIXIT any value)

INVITE 4: Request URI = **ISC#3** URI
      Referred-By contains **ISC#1** URI

Comments:

ISC#1		AS Transferor		ISC#2		ISC#3
		Establishment of session #1				
		Session #1 on hold				
		Establishment of session #2				
		Session #2 on hold				
		ISC#1 transfers ISC#2 to ISC#3				
REFER 1	➜	REFER				
		REFER 2	➜	REFER		
		2xx OK REFER	⬅	2xx OK REFER		
2xx OK REFER	⬅	2xx OK REFER				
INVITE (inactive)	⬅			⬅	INVITE (inactive)	
200 OK (inactive)	➜			➜	200 OK (inactive)	
ACK	⬅			⬅	ACK	
NOTIFY(100)	⬅			⬅	NOTIFY(100)	
200 OK NOTIFY	➜			➜	200 OK NOTIFY	
		INVITE	⬅	INVITE 3		
		INVITE 4	➜		➜	INVITE
		180 Ringing	⬅		⬅	180 Ringing
		180 Ringing	➜	180 Ringing		
		200 OK	⬅		⬅	200 OK
		200 OK	➜	200 OK		
					ACK ➜	ACK
NOTIFY(200)	⬅			⬅	NOTIFY(200)	
200 OK NOTIFY	➜			➜	200 OK NOTIFY	
		Apply post test routine				

TSS Netw/TransferorAS	TP ECT_N01_013	Reference 4.5.2.4.2.1	Selection expression PICS 4.5.1/2 AND NOT (PICS 4.7.1/4 OR PICS 4.7.1/5)

Test purpose
*The received **INVITE** does not contain a Referred-By header.*
If no Referred-By header is available in the INVITE request a Referred-By header is added that matches the REFER request's P-Asserted-Identity.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
        P-Asserted-Identity=**ISC#1**
INVITE 3: Request URI = **ECT Session Identifier** URI
        Referred-By not present
INVITE 4: Request URI = **ISC#3** URI
        Referred-By contains **ISC#1** URI

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
		Establishment of session #2			
		Session #2 on hold			
		ISC#1 transfers ISC#2 to ISC#3			
REFER 1	➔	REFER			
		REFER 2 ➔	REFER		
		2xx OK REFER ⬅	2xx OK REFER		
2xx OK REFER	⬅	2xx OK REFER			
INVITE (inactive)	⬅		⬅	INVITE (inactive)	
200 OK (inactive)	➔		➔	200 OK (inactive)	
ACK	⬅		⬅	ACK	
NOTIFY(100)	⬅		⬅	NOTIFY(100)	
200 OK NOTIFY	➔		➔	200 OK NOTIFY	
		INVITE ⬅	INVITE 3		
		INVITE 4 ➔		➔	INVITE
		180 Ringing ⬅		⬅	180 Ringing
		180 Ringing ➔	180 Ringing		
		200 OK ⬅		⬅	200 OK
		200 OK ➔	200 OK		
				ACK ➔	ACK
NOTIFY(200)	⬅		⬅	NOTIFY(200)	
200 OK NOTIFY	➔		➔	200 OK NOTIFY	
BYE	➔		➔	BYE	
200 OK (BYE)	⬅		⬅	200 OK (BYE)	
		Apply post test routine			

TSS Netw/TransferorAS	TP ECT_N01_014	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/4

Test purpose
Assured transfer. The Transferor AS receives a 403 Forbidden indicating the Transferee does not support the REFER method.
Ensure that three party call control applies at the Transferor AS when a 403 Forbidden is received upon a REFER was sent to the Transferee:
- A 2xx OK REFER for the REFER is sent.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 100 Trying' if the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 200 OK' if the refered communication is established.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      Subscription-State: **active;expires=(any value)**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**
      Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
REFER 1	➔	REFER			
		REFER ➔	REFER		
		403 Forbidden ⬅	403 Forbidden		
202 Accepted	⬅	202 Accepted			
		3 party call control applies			
		INVITE 3 ➔		➔	INVITE
		180 Ringing ⬅		⬅	180 Ringing
		200 OK ⬅		⬅	200 OK
		ACK ➔		➔	ACK
NOTIFY(100)	⬅	NOTIFY(100)			
200 OK NOTIFY	➔	200 OK NOTIFY			
		INVITE 4 ➔	INVITE		
		200 OK ⬅	200 OK		
		ACK ➔	ACK		
NOTIFY(200)	⬅	NOTIFY(200)			
200 OK NOTIFY	➔	200 OK NOTIFY			
BYE	➔	BYE			
200 OK (BYE)	⬅	200 OK (BYE)			
		Apply post test routine			

TSS Netw/TransferorAS	TP ECT_N01_015	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/4

Test purpose
__Blind transfer__. The Transferor AS receives a 403 Forbidden indicating the Transferee does not support the REFER method.
Ensure that three party call control applies at the Transferor AS when a 403 Forbidden is received upon a REFER was sent to the Transferee:
- A 2xx OK REFER for the REFER is sent.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 100 Trying' if the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 200 OK' if the refered communication is established.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
     Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
    Subscription-State: **active;expires=(any value)**
    message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
    message/sipfrag contains **SIP/2.0 200 OK**
    Subscription-State: terminated;reason=noresource

Comments:

```
ISC#1                          AS Transferor        ISC#2                 ISC#3
                        Establishment of session #1
                           Session #1 on hold

REFER 1              ➜    REFER
                              REFER      ➜   REFER
                              403 Forbidden ⬅  403 Forbidden
2xx OK REFER         ⬅    2xx OK REFER
BYE                  ➜
200 OK (BYE)         ⬅
                         3 party call control applies
                              INVITE 3   ➜             ➜    INVITE
                              180 Ringing ⬅            ⬅    180 Ringing
                              200 OK     ⬅             ⬅    200 OK
                              ACK        ➜             ➜    ACK
NOTIFY(100)          ⬅
200 OK NOTIFY        ➜
                              INVITE 4   ➜   INVITE
                              200 OK     ⬅   200 OK
                              ACK        ➜   ACK
NOTIFY(200)          ⬅    NOTIFY(200)
200 OK NOTIFY        ➜    200 OK NOTIFY
                           Apply post test routine
```

TSS Netw/TransferorAS	TP ECT_N01_016	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND PICS 4.7.1/4

Test purpose
Consultative transfer*. The Transferor AS receives a 403 Forbidden indicating the Transferee does not support
the REFER method.*
Ensure that three party call control applies at the Transferor AS when a 403 Forbidden is received upon a REFER
was sent to the Transferee:
- A 2xx OK REFER for the REFER is sent.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 100 Trying' if the REFER request is
  accepted
- A reINVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the
  Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of
  the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 200 OK' if the refered communication is
  established.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI;method=invite?Replaces=**call-id1**%3B**to-tag**%3D**S1**%3B
          from-tag%3D**S1**&Require=replaces
     Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2,** P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
        Subscription-State: **active;expires=(any value)**
        message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
        message/sipfrag contains **SIP/2.0 200 OK**
        Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
		Establishment of session #2			
		Session #2 on hold			
REFER 1	➔	REFER			
		REFER ➔	REFER		
		403 Forbidden ←	403 Forbidden		
2xx OK REFER	←	2xx OK REFER			
		3 party call control applies			
		INVITE 3 ➔		➔	INVITE
		180 Ringing ←		←	180 Ringing
		200 OK ←		←	200 OK
		ACK ➔		➔	ACK
NOTIFY(100)	←	NOTIFY(100)			
200 OK NOTIFY	➔	200 OK NOTIFY			
		INVITE 4 ➔	INVITE		
		200 OK ←	200 OK		
		ACK ➔	ACK		
NOTIFY(200)	←	NOTIFY(200)			
200 OK NOTIFY	➔	200 OK NOTIFY			
BYE(S1)	➔	BYE			
200 OK (BYE)	←	200 OK (BYE)			
BYE	←	BYE(S2)			
200 OK (BYE)	➔	200 OK (BYE)			
		Apply post test routine			

TSS Netw/TransferorAS	TP ECT_N01_017	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/4

Test purpose
Assured transfer*. The Transferor AS receives a 501 Not implemented indicating the Transferee does not support the REFER method.*
Ensure that three party call control applies at the Transferor AS when a 501 Not implemented is received upon a REFER was sent to the Transferee:
- A 2xx OK REFER for the REFER is sent.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
     Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
    Subscription-State: **active;expires=(any value)**
    message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
    message/sipfrag contains **SIP/2.0 200 OK**
    Subscription-State: terminated;reason=noresource

Comments:

```
ISC#1                    AS Transferor           ISC#2              ISC#3
                   Establishment of session #1
                   Session #1 on hold

REFER 1          →   REFER
                          REFER       →   REFER
                     501 Not implemented  ←   501 Not implemented
2xx OK REFER     ←   2xx OK REFER
                   3 party call control applies
                         INVITE 3   →                     →   INVITE
                         180 Ringing ←                    ←   180 Ringing
                         200 OK      ←                    ←   200 OK
                         ACK        →                     →   ACK
NOTIFY(100)      ←   NOTIFY(100)
200 OK NOTIFY    →   200 OK NOTIFY

                         INVITE 4   →   INVITE
                         200 OK     ←   200 OK
                         ACK       →   ACK
NOTIFY(200)      ←   NOTIFY(200)
200 OK NOTIFY    →   200 OK NOTIFY

BYE              →   BYE
200 OK (BYE)     ←   200 OK (BYE)
                   Apply post test routine
```

TSS Netw/TransferorAS	TP ECT_N01_018	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/4

Test purpose
Blind transfer. The Transferor AS receives a 501 Not implemented indicating the Transferee does not support the REFER method.
Ensure that three party call control applies at the Transferor AS when a 501 Not implemented is received upon a REFER was sent to the Transferee:
- A 2xx OK REFER for the REFER is sent.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      Subscription-State: **active;expires=(any value)**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**
      Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
REFER 1	➜	REFER			
		REFER ➜	REFER		
		501 Not implemented ⬅	501 Not implemented		
2xx OK REFER	⬅	2xx OK REFER			
BYE	➜				
200 OK (BYE)	⬅				
		3 party call control applies			
		INVITE 3 ➜		➜	INVITE
		180 Ringing ⬅		⬅	180 Ringing
		200 OK ⬅		⬅	200 OK
		ACK ➜		➜	ACK
NOTIFY(100)	⬅				
200 OK NOTIFY	➜				
		INVITE 4 ➜	INVITE		
		200 OK ⬅	200 OK		
		ACK ➜	ACK		
NOTIFY(200)	⬅	NOTIFY(200)			
200 OK NOTIFY	➜	200 OK NOTIFY			
		Apply post test routine			

TSS Netw/TransferorAS	TP ECT_N01_019	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND PICS 4.7.1/4

Test purpose
Consultative transfer. The Transferor AS receives a 501 Not implemented indicating the Transferee does not support the REFER method.
Ensure that three party call control applies at the Transferor AS when a 501 Not implemented is received upon a REFER was sent to the Transferee:
- A 2xx OK REFER for the REFER is sent.
- A reINVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI;method=invite?Replaces=**call-id1**%3B**to-tag**%3D**S1**%3B
     from-tag%3D**S1**&Require=replaces
   Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2,** P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
   Subscription-State: **active;expires=(any value)**
   message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
   message/sipfrag contains **SIP/2.0 200 OK**
   Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor	ISC#2	ISC#3
		Establishment of session #1		
		Session #1 on hold		
		Establishment of session #2		
		Session #2 on hold		
REFER 1	➜	REFER		
		REFER ➜	REFER	
		501 Not implemented ←	501 Not implemented	
2xx OK REFER	←	2xx OK REFER		
		3 party call control applies		
		INVITE 3 ➜		➜ INVITE
		180 Ringing ←		← 180 Ringing
		200 OK ←		← 200 OK
		ACK ➜		➜ ACK
NOTIFY(100)	←	NOTIFY(100)		
200 OK NOTIFY	➜	200 OK NOTIFY		
		INVITE 4 ➜	INVITE	
		200 OK ←	200 OK	
		ACK ➜	ACK	
NOTIFY(200)	←	NOTIFY(200)		
200 OK NOTIFY	➜	200 OK NOTIFY		
BYE(S1)	➜	BYE		
200 OK (BYE)	←	200 OK (BYE)		
BYE	←	BYE(S2)		
200 OK (BYE)	➜	200 OK (BYE)		
		Apply post test routine		

TSS Netw/TransferorAS	TP ECT_N01_020	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/5

Test purpose
Assured transfer. The Transferor AS initiate the special REFER handling procedures directly.
Ensure that three party call control applies directly at the Transferor AS when the AS has prior **knowledge** that **the Transferee is not allowed** to receive or **does not support the REFER method**:
- A 2xx OK REFER for the REFER is sent.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      Subscription-State: **active;expires=(any value)**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**
      Subscription-State: terminated;reason=noresource

Comments:

ISC#1	AS Transferor	ISC#2	ISC#3
	Establishment of session #1		
	Session #1 on hold		
REFER 1	➔ REFER		
2xx OK REFER	⬅ 2xx OK REFER		
	3 party call control applies		
	INVITE 3 ➔		➔ INVITE
	180 Ringing ⬅		⬅ 180 Ringing
	200 OK ⬅		⬅ 200 OK
	ACK ➔		➔ ACK
NOTIFY(100)	⬅ NOTIFY(100)		
200 OK NOTIFY	➔ 200 OK NOTIFY		
	INVITE 4 ➔	INVITE	
	200 OK ⬅	200 OK	
	ACK ➔	ACK	
NOTIFY(200)	⬅ NOTIFY(200)		
200 OK NOTIFY	➔ 200 OK NOTIFY		
BYE	➔ BYE		
200 OK (BYE)	⬅ 200 OK (BYE)		
	Apply post test routine		

TSS Netw/TransferorAS	TP ECT_N01_021	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/5

Test purpose
Blind transfer. *The Transferor AS initiate the special REFER handling procedures directly.*
Ensure that three party call control applies directly at the Transferor AS when the AS has prior **knowledge** that **the Transferee is not allowed** to receive or **does not support the REFER method**:
- A 2xx OK REFER for the REFER is sent.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      Subscription-State: **active;expires=(any value)**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**
      Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor	ISC#2	ISC#3
		Establishment of session #1		
		Session #1 on hold		
REFER 1	➔	REFER		
2xx OK REFER	⬅	2xx OK REFER		
BYE	➔			
200 OK (BYE)	⬅			
		3 party call control applies		
		INVITE 3 ➔	➔	INVITE
		180 Ringing ⬅	⬅	180 Ringing
		Optional: announcement to		
		the transferee		
		200 OK ⬅	⬅	200 OK
NOTIFY(100)	⬅			
200 OK NOTIFY	➔			
		ACK ➔	➔	ACK
		INVITE 4 ➔	INVITE	
		200 OK ⬅	200 OK	
		ACK ➔	ACK	
NOTIFY(200)	⬅	NOTIFY(200)		
200 OK NOTIFY	➔	200 OK NOTIFY		
		Apply post test routine		

TSS Netw/TransferorAS	TP ECT_N01_022	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND PICS 4.7.1/5

Test purpose
Consultative transfer. The Transferor AS initiate the special REFER handling procedures directly.
Ensure that three party call control applies directly at the Transferor AS when the AS has prior **knowledge** that **the Transferee is not allowed** to receive or **does not support the REFER method**:
- A 2xx OK REFER for the REFER is sent.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted.
- A reINVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2,** P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      Subscription-State: **active;expires=(any value)**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**
      Subscription-State: terminated;reason=noresource

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
		Establishment of session #2			
REFER 1	➔	REFER			
2xx OK REFER	⬅	2xx OK REFER			
		3 party call control applies			
		INVITE 3 ➔		➔	INVITE
		180 Ringing ⬅		⬅	180 Ringing
		200 OK ⬅		⬅	200 OK
		ACK ➔		➔	ACK
NOTIFY(100)	⬅	NOTIFY(100)			
200 OK NOTIFY	➔	200 OK NOTIFY			
		INVITE 4 ➔	INVITE		
		200 OK ⬅	200 OK		
		ACK ➔	ACK		
NOTIFY(200)	⬅	NOTIFY(200)			
200 OK NOTIFY	➔	200 OK NOTIFY			
BYE	➔	BYE			
200 OK (BYE)	⬅	200 OK (BYE)			
BYE	⬅	BYE			
200 OK (BYE)	➔	200 OK (BYE)			
		Apply post test routine			

TSS	TP	Reference	Selection expression
Netw/TransferorAS	ECT_N01_023	4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/5

Test purpose
Assured transfer*. The Transferor AS terminates the call attempt to the transfer target.*
Ensure that three party call control applies the AS starts a timer set to the value received in the Expires header field contained in the Refer-To URI: After timer expiry the AS sends a CANCEL request to the Transfer Target.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite?Expires=<any value>
　　　Referred-By contains **ISC#1** URI

Comments:

```
ISC#1                   AS Transferor      ISC#2                         ISC#3
                        Establishment of session #1
                Session #1 on hold

REFER 1          ➔  REFER
2xx OK REFER     ⬅  2xx OK REFER
                                 3 party call control applies
                          INVITE 3  ➔                     ➔   INVITE
NOTIFY(100)      ⬅  NOTIFY(100)  ⬅
200 OK NOTIFY    ➔  200 OK NOTIFY  ➔
                        180 Ringing  ⬅                    ⬅   180 Ringing

                              Timer expiry
                          ➔  CANCEL                       ➔   CANCEL
                          ⬅  200 OK CANCEL                ⬅   200 OK CANCEL
                          ⬅  487 Request Terminated       ⬅   487 Request Terminated
                          ➔  ACK                          ➔   ACK
                        Apply post test routine
```

TSS	TP	Reference	Selection expression
Netw/TransferorAS	ECT_N01_023	4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/5

Test purpose
Blind transfer*. The Transferor AS terminates the call attempt to the transfer target.*
Ensure that three party call control applies the AS starts a timer set to the value received in the Expires header field contained in the Refer-To URI: After timer expiry the AS sends a CANCEL request to the Transfer Target.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite?Expires=<any value>
　　　Referred-By contains **ISC#1** URI

Comments:

```
ISC#1                   AS Transferor      ISC#2                         ISC#3
                        Establishment of session #1
                Session #1 on hold

REFER 1          ➔  REFER
2xx OK REFER     ⬅  2xx OK REFER
BYE              ➔
200 OK (BYE)     ⬅
                                 3 party call control applies
                          INVITE 3  ➔                     ➔   INVITE
NOTIFY(100)      ⬅  NOTIFY(100)  ⬅
200 OK NOTIFY    ➔  200 OK NOTIFY  ➔
                        180 Ringing  ⬅                    ⬅   180 Ringing

                              Timer expiry
                          ➔  CANCEL                       ➔   CANCEL
                          ⬅  200 OK CANCEL                ⬅   200 OK CANCEL
                          ⬅  487 Request Terminated       ⬅   487 Request Terminated
                          ➔  ACK                          ➔   ACK
                        Apply post test routine
```

TSS Netw/TransferorAS	TP ECT_N01_024	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND PICS 4.7.1/5

Test purpose
Consultative transfer. The Transferor AS terminates the call attempt to the transfer target.
Ensure that three party call control applies the AS starts a timer set to the value received in the Expires header field contained in the Refer-To URI: After timer expiry the AS sends a CANCEL request to the Transfer Target.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite?Expires=<any value>
         Referred-By contains **ISC#1** URI

Comments:

```
ISC#1                    AS Transferor      ISC#2                        ISC#3
                         Establishment of session #1
                 Session #1 on hold
                         Establishment of session #2

REFER 1         ➔   REFER
2xx OK REFER    ⬅   2xx OK REFER
                         3 party call control applies
                         INVITE 3  ➔                    ➔   INVITE
NOTIFY(100)     ⬅   NOTIFY(100)
200 OK NOTIFY   ➔   200 OK NOTIFY
                         180 Ringing  ⬅                 ⬅   180 Ringing

                         Timer expiry
                    ➔   CANCEL                           ➔   CANCEL
                    ⬅   200 OK CANCEL                    ⬅   200 OK CANCEL
                    ⬅   487 Request Terminated           ⬅   487 Request Terminated
                    ➔   ACK                              ➔   ACK
                         Apply post test routine
```

5.2.3   Actions at the Transferee UE

TSS User/Transferee	TP ECT_U02_001	Reference 4.5.2.5	Selection expression PICS 4.5.1/1 AND (PICS 4.6.1/1 OR PICS 4.6.1/2) AND PICS 4.6.1/5

Test purpose
*The User Equipment receives the request to establish a communication to the transfer target (*Transferee *Blind/assured transfer)*
Ensure that the UE establishes a session with a 'transfer target' if a REFER request was received containing a Refer-To header and a Referred-By header. The Request Line of INVITE request sent by the UE is set to the URI received in the Refer-To header. The received Referred-By header is sent in the INVITE request. Ensure that a NOTIFY request is sent containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted. Ensure that a NOTIFY request is sent containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER: Request URI: **Gm#1**
          Refer-To: contains **Gm#3** URI;method=invite
          Referred-By: contains **Gm#2** URI
NOTIFY(100):Event contains **refer**
          Subscription-State: **active;expires=(any value)**
          message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
          message/sipfrag contains **SIP/2.0 200 OK**
INVITE: Request URI: **Gm#3**
          Referred-By contains **Gm#2** URI

Comments: UE (Gm#1)		Test equipment (Gm#2)
	Establishment of session #1	
		Session #1 on hold
REFER	←	REFER
CASE A		
2xx OK REFER (Session #1)	→	2xx OK REFER
NOTIFY(100)	→	NOTIFY(100)
200 OK NOTIFY	←	200 OK NOTIFY
INVITE(inactive/sendonly) (**Session #1**)	→	INVITE
200 OK INVITE	←	200 OK INVITE(inactive/recvonly)
ACK	→	ACK
INVITE (**Session #2**)	→	INVITE
180 Ringing	←	180 Ringing
200 OK INVITE	←	200 OK INVITE
ACK	→	ACK
NOTIFY(200)	→	NOTIFY(200)
200 OK NOTIFY	←	200 OK NOTIFY
CASE B		
NOTIFY(100) (Session #1)	→	NOTIFY(100)
200 OK NOTIFY	←	200 OK NOTIFY
202 Accepted (Session #1)	→	202 Accepted
INVITE(inactive/sendonly) (**Session #1**)	→	INVITE
200 OK INVITE	←	200 OK INVITE(inactive/recvonly)
ACK	→	ACK
INVITE (**Session #2**)	→	INVITE
180 Ringing	←	180 Ringing
200 OK INVITE (Session #2)	←	200 OK INVITE
ACK	→	ACK
NOTIFY(200) (Session #1)	→	NOTIFY(200)
200 OK NOTIFY	←	200 OK NOTIFY
	Apply post test routine	

TSS	TP	Reference	Selection expression
User/Transferee	ECT_U02_002	4.5.2.5	PICS 4.5.1/1 AND PICS 4.6.1/3 AND PICS 4.6.1/5

Test purpose

The User Equipment receives the request to establish a communication to the transfer target (Transferee consultative transfer)

Ensure that the UE establishes a session with a 'transfer target' if a REFER request was received containing a Refer-To header and a Referred-By header. The Request Line of INVITE request sent by the UE is set to the URI received in the Refer-To header. The received Referred-By header is sent in the INVITE request. The Replaces header escaped in the received REFER request is sent in the INVITE request.

Ensure that a NOTIFY request is sent containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted.

Ensure that a NOTIFY request is sent containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER: Request URI: **Gm#1**
        Refer-To: contains **Gm#3** URI; method=invite?**Replaces**=<any value>%3Bto-tag%3D<any To tag
            value>%3Bfrom-tag%3D<any From tag value>&Require=replaces
        Referred-By: contains **Gm#2** URI
NOTIFY(100):Event contains **refer**
        Subscription-State: **active;expires=(any value)**
        message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
        message/sipfrag contains **SIP/2.0 200 OK**
INVITE: Request URI: **Gm#3**
        Referred-By contains **Gm#2** URI
        Replaces: <any value>;to-tag=<any To tag value>=from-tag=<any From tag value>
        Require: contains **replaces**

Comments:

UE (Gm#1)   **Test equipment (Gm#2)**
                    Establishment of session #1
                               Session #1 on hold

REFER   ←   REFER
CASE A
2xx OK REFER (Session #1)   →   2xx OK REFER

NOTIFY(100)   →   NOTIFY(100)
200 OK NOTIFY   ←   200 OK NOTIFY

INVITE(inactive/sendonly) (**Session #1**)   →   INVITE
200 OK INVITE   ←   200 OK INVITE(inactive/recvonly)
ACK   →   ACK
INVITE (**Session #2**)   →   INVITE
180 Ringing   ←   180 Ringing
200 OK INVITE   ←   200 OK INVITE
ACK   →   ACK

NOTIFY(200)   →   NOTIFY(200)
200 OK NOTIFY   ←   200 OK NOTIFY

CASE B
NOTIFY(100) (Session #1)   →   NOTIFY(100)
200 OK NOTIFY   ←   200 OK NOTIFY

202 Accepted (Session #1)   →   202 Accepted

INVITE(inactive/sendonly) (**Session #1**)   →   INVITE
200 OK INVITE   ←   200 OK INVITE(inactive/recvonly)
ACK   →   ACK
INVITE (**Session #2**)   →   INVITE
180 Ringing   ←   180 Ringing
200 OK INVITE   ←   200 OK INVITE
ACK   →   ACK

NOTIFY(200) (Session #1)   →   NOTIFY(200)
200 OK NOTIFY   ←   200 OK NOTIFY
                      Apply post test routine

TSS	TP	Reference	Selection expression
User/Transferee	ECT_U02_003	4.5.2.5	PICS 4.5.1/1 AND NOT PICS 4.6.1/5

Test purpose
UE has not the capability to handle the REFER request.
Ensure that the UE is able to send a 403 Forbidden or 501 Not implemented unsuccessful final response if the REFER handling is not implemented.

SIP header values:
REFER: Request URI=Gm#1, Refer-To other URI (PIXIT); method=invite
          Referred-By contains **Gm#2** URI

Comments:
UE (Gm#1)   **Test equipment (Gm#2)**
                          Establishment of session #1
                          Session #1 on hold
REFER   ←   REFER

CASE A
403 Forbidden   →   403 Forbidden

CASE A
501 Not implemented   →   501 Not implemented
                          Apply post test routine

5.2.4   Action at the Transferee AS

TSS	TP	Reference	Selection expression
Netw/TransfereeAS	ECT_N02_001	4.5.2.7	PICS 4.5.1/2

Test purpose
*Communication transfer: **Assured transfer** applicable at the Transferee AS.*
Ensure that the Transferee AS can act as a proxy when receives the REFER request, the INVITE request and the BYE request for the call that is transferred as an assured transfer.

SIP header values:
REFER 1: Refer-To **ISC#3** URI; method=invite
      Referred-By contains ISC#1 URI
REFER 2: Refer-To **ISC#3** URI; method=invite
      Referred-By contains ISC#1 URI
INVITE 3: Request URI = **ISC#3**URI
INVITE 4: Request URI = **ISC#3** URI
NOTIFY(100):Event contains **refer**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#2		AS Transferee		ISC#3		ISC#1
		Establishment of session #1				
						Session #1 on hold
		ISC#1 transfers ISC#2 to ISC#3				
		REFER	←			← REFER 1
REFER	←	REFER 2				
2xx OK REFER	→	2xx OK REFER				
		2xx OK REFER	→			→ 2xx OK REFER
NOTIFY(100)	→					→ NOTIFY(100)
200 OK NOTIFY	←					← 200 OK NOTIFY
INVITE 3 (S2)	→	INVITE				
		INVITE 4	→	INVITE		
		180 Ringing	←	180 Ringing		
180 Ringing	←	180 Ringing				
			←	200 OK		
200 OK ←		200 OK				
ACK →				→ ACK		
NOTIFY(200)	→					→ NOTIFY(200)
200 OK NOTIFY	←					← 200 OK NOTIFY
BYE	←					← BYE (S1)
200 OK (BYE)	→					→ 200 OK (BYE)
		Apply post test routine				

TSS	TP	Reference	Selection expression
Netw/TransfereeAS	ECT_N02_002	4.5.2.7	PICS 4.5.1/2

Test purpose

*Communication transfer: **Blind transfer** applicable at the Transferee AS.*

Ensure that the Transferee AS can act as a proxy when receives the REFER request, the INVITE request and the BYE request for the call that is transferred as a blind transfer.

SIP header values:

REFER 1: Refer-To **ISC#3** URI;method=invite
         Referred-By contains ISC#1 URI
REFER 2: Refer-To **ISC#3** URI;method=invite
         Referred-By contains ISC#1 URI
INVITE 3: Request URI = **ISC#3** URI
INVITE 4: Request URI = **ISC#3** URI
NOTIFY(100):Event contains **refer**
            message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
            message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#2		AS Transferee	ISC#3		ISC#1
		Establishment of session #1			
				Session #1 on hold	
		ISC#1 transfers ISC#2 to ISC#3			
		REFER ←		←	REFER 1
REFER	←	REFER 2			
2xx OK REFER	→	2xx OK REFER			
		2xx OK REFER →		→	2xx OK REFER
BYE	←			←	BYE (S1)
200 OK (BYE)	→			→	200 OK (BYE)
NOTIFY(100)	→			→	NOTIFY(100)
200 OK NOTIFY	←			←	200 OK NOTIFY
INVITE 3	→	INVITE			
		INVITE 4 →	INVITE		
		180 Ringing ←	180 Ringing		
180 Ringing	←	180 Ringing			
			←	200 OK	
200 OK ←		200 OK			
ACK →			→	ACK	
NOTIFY(200)	→			→	NOTIFY(200)
200 OK NOTIFY	←			←	200 OK NOTIFY
		Apply post test routine			

TSS	TP	Reference	Selection expression
Netw/TransfereeAS	ECT_N02_003	4.5.2.7	PICS 4.5.1/2

Test purpose

*Communication transfer: **Consultative transfer** applicable at the Transferee AS.*

Ensure that the Transferee AS can act as a proxy when receives the REFER request, the INVITE request and the BYE request for the call that is transferred as a *Consultative* transfer.

SIP header values:

REFER 1: Refer-To ISC#3 URI;method=invite?Replaces=**call-id1**%3B**to-tag**%3D**S1**%3B
                    from-tag%3D**S1**&Require=replaces
       Referred-By contains ISC#1 URI
REFER 2: Refer-To contains ISC#3/Transferee AS URI;method=invite
       Referred-By contains ISC#1 URI
INVITE 3: Request URI = ISC#3/Transferee AS URI
       Referred-By contains ISC#1 URI
INVITE 4: Request URI = ISC#3 URI
       Replaces: **call-id1**;**to-tag**=**S1**;**from-tag**=**S1**
       Referred-By contains ISC#1 URI
       Require: replaces
NOTIFY(100):Event contains **refer**
            message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
            message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#2		AS Transferee	ISC#3		ISC#1
		Establishment of session #1			
			Session #1 on hold		
		Establishment of session #2			
			Session #2 on hold		
		ISC#1 transfers ISC#2 to ISC#3			
		REFER ←		←	REFER 1
REFER	←	REFER 2			
2xx OK REFER	→	2xx OK REFER			
		2xx OK REFER →		→	2xx OK REFER
INVITE (S2 inactive)	→	INVITE (inactive)			
200 OK (inactive)	←	200 OK (S2 inactive)			
ACK	→	ACK			
NOTIFY(100)	→			→	NOTIFY(100)
200 OK NOTIFY	←			←	200 OK NOTIFY
INVITE 3	→	INVITE			
		INVITE 4 →	INVITE		
		180 Ringing ←	180 Ringing		
180 Ringing	←	180 Ringing			
			←	200 OK	
200 OK ←		200 OK			
ACK →		ACK			
		ACK →	ACK		
NOTIFY(200)	→			→	NOTIFY(200)
200 OK NOTIFY	←			←	200 OK NOTIFY
BYE	←			←	BYE (S1)
200 OK (BYE)	→			→	200 OK (BYE)
		Apply post test routine			

TSS Netw/TransfereeAS	TP ECT_N02_004	Reference 4.5.2.7.3	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/7

Test purpose
The Referred-By header in the received INVITE does not contain the valid identity of the served user. Value is replaced.
If a Referred-By header is available in the INVITE request sent to the Transfer Target, the AS verifies the provided Referred-By header contains the value stored in the received REFER request.
If no match is found, the value of the Referred-By header is replaced by the value of the Referred-By header received in the REFER request.

SIP header values:
REFER 2: Refer-To URI; method=invite …
        Referred-By **ISC#1**
INVITE 3: Referred-By **other URI** (PIXIT)
INVITE 4: Referred-By **ISC#1**

Comments:

ISC#2		AS Transferee	ISC#3		ISC#1
		Establishment of session #1			
					Session #1 on hold
		Establishment of session #2			
					Session #2 on hold
					ISC#1 transfers ISC#2 to ISC#3
		REFER ←		←	REFER 1
REFER	←	REFER 2			
2xx OK REFER	→	2xx OK REFER			
		2xx OK REFER →		→	2xx OK REFER
NOTIFY(100)	→			→	NOTIFY(100)
200 OK NOTIFY	←			←	200 OK NOTIFY
INVITE 3	→	INVITE			
		INVITE 4 →	INVITE		
		180 Ringing ←	180 Ringing		
180 Ringing	←	180 Ringing			
			←	200 OK	
	200 OK ←	200 OK			
	ACK →	ACK			
		ACK →	ACK		
NOTIFY(200)	→			→	NOTIFY(200)
200 OK NOTIFY	←			←	200 OK NOTIFY
BYE	←			←	BYE
200 OK (BYE)	→			→	200 OK (BYE)

Apply post test routine

TSS Netw/TransfereeAS	TP ECT_N02_005	Reference 4.5.2.7.3	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6
Test purpose *The Referred-By header in the received INVITE does not contain the valid identity of the served user. The request is rejected.* If a Referred-By header is available in the INVITE request sent to the Transfer Target, the AS verifies if the provided Referred-By header contains the value stored in the received REFER request. If no match is found, the INVITE request is rejected.			
SIP header values: REFER 2: Refer-To URI; method=invite … Referred-By **ISC#1** INVITE 3: Referred-By **other URI** (PIXIT)			
Comments:			

Comments:

ISC#2		AS Transferee	ISC#3		ISC#1
		Establishment of session #1			
					Session #1 on hold
		Establishment of session #2			
					Session #2 on hold
					ISC#1 transfers ISC#2 to ISC#3
		REFER ←		←	REFER 1
REFER	←	REFER 2			
2xx OK REFER	→	2xx OK REFER			
		2xx OK REFER →		→	2xx OK REFER
NOTIFY(100)	→			→	NOTIFY(100)
200 OK NOTIFY	←			←	200 OK NOTIFY
INVITE 3	→	INVITE			
4xx	←	4xx			
ACK	→	ACK			
		Apply post test routine			

TSS Netw/TransfereeAS	TP ECT_N02_006	Reference 4.5.2.7.3	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/8

Test purpose
The received INVITE does not contain a Referred-By header.
If no **Referred-By** header is available in the INVITE request sent to the Transfer Target, the AS inserts a Referred-By header and the value is equal to the value stored in the received REFER request.

SIP header values:
REFER 2: Refer-To URI; method=invite …
      Referred-By **ISC#1**
INVITE 3: (no Referred-By header)
INVITE 4: Referred-By **ISC#1**

Comments:

ISC#2		AS Transferee	ISC#3		ISC#1
		Establishment of session #1			
					Session #1 on hold
		Establishment of session #2			
					Session #1 on hold
					ISC#1 transfers ISC#2 to ISC#3
		REFER ←		←	REFER 1
REFER	←	REFER 2			
2xx OK REFER	→	2xx OK REFER			
		2xx OK REFER →		→	2xx OK REFER
NOTIFY(100)	→			→	NOTIFY(100)
200 OK NOTIFY	←			←	200 OK NOTIFY
INVITE 3	→	INVITE			
		INVITE 4 →	INVITE		
		180 Ringing ←	180 Ringing		
180 Ringing	←	180 Ringing			
			←	200 OK	
200 OK	←	200 OK			
ACK	→	ACK			
		ACK →	ACK		
NOTIFY(200)	→			→	NOTIFY(200)
200 OK NOTIFY	←			←	200 OK NOTIFY
BYE	←			←	BYE
200 OK (BYE)	→			→	200 OK (BYE)

Apply post test routine

TSS Netw/TransfereeAS	TP ECT_N02_007	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/4

Test purpose
Assured transfer. The Transferee AS receives a 403 Forbidden indicating the Transferee does not support the REFER method.
Ensure that three party call control applies at the Transferee AS when a 403 Forbidden is received upon a REFER was sent to the Transferee:
- A 202 Accepted for the REFER is sent.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 100 Trying' if the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 200 OK' if the refered communication is established.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
REFER 1	➜	REFER			
		REFER ➜	REFER		
		403 Forbidden ⬅	403 Forbidden		
2xx OK REFER	⬅	2xx OK REFER			
		3 party call control applies			
		INVITE 3 ➜		➜	INVITE
		180 Ringing ⬅		⬅	180 Ringing
		200 OK ⬅		⬅	200 OK
		ACK ➜		➜	ACK
NOTIFY(100)	⬅	NOTIFY(100)			
200 OK NOTIFY	➜	200 OK NOTIFY			
		INVITE 4 ➜	INVITE		
		200 OK ⬅	200 OK		
		ACK ➜	ACK		
NOTIFY(200)	⬅	NOTIFY(200)			
200 OK NOTIFY	➜	200 OK NOTIFY			
BYE	➜	BYE			
200 OK (BYE)	⬅	200 OK (BYE)			
		Apply post test routine			

TSS Netw/TransfereeAS	TP ECT_N02_008	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/4

Test purpose
Blind transfer. *The Transferee AS receives a 403 Forbidden indicating the Transferee does not support the REFER method.*
Ensure that three party call control applies at the Transferee AS when a 403 Forbidden is received upon a REFER was sent to the Transferee:
- A 202 Accepted for the REFER is sent.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 100 Trying' if the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 200 OK' if the refered communication is established.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		AS Transferor		ISC#2		ISC#3
		Establishment of session #1				
		Session #1 on hold				
REFER 1	➜	REFER				
			REFER ➜	REFER		
			403 Forbidden ⬅	403 Forbidden		
2xx OK REFER	⬅	2xx OK REFER				
BYE	➜					
200 OK (BYE)	⬅					
		3 party call control applies				
			INVITE 3 ➜		➜	INVITE
			180 Ringing ⬅		⬅	180 Ringing
			200 OK ⬅		⬅	200 OK
			ACK ➜		➜	ACK
NOTIFY(100)	⬅					
200 OK NOTIFY	➜					
			INVITE 4 ➜	INVITE		
			200 OK ⬅	200 OK		
			ACK ➜	ACK		
NOTIFY(200)	⬅	NOTIFY(200)				
200 OK NOTIFY	➜	200 OK NOTIFY				
		Apply post test routine				

TSS Netw/TransfereeAS	TP ECT_N02_009	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND PICS 4.7.1/4

Test purpose
Consultative transfer. *The Transferee AS receives a 403 Forbidden indicating the Transferee does not support the REFER method.*
Ensure that three party call control applies at the Transferee AS when a 403 Forbidden is received upon a REFER was sent to the Transferee:

- A 202 Accepted for the REFER is sent.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 100 Trying' if the REFER request is accepted.
- A reINVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY containing a message/sipfrag body set to 'SIP/2.0 200 OK' if the refered communication is established.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
       Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2,** P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
       message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
       message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		AS Transferor		ISC#2		ISC#3
		Establishment of session #1				
		Session #1 on hold				
		Establishment of session #2				
		Session #2 on hold				
REFER 1	➔	REFER				
		REFER	➔	REFER		
		403 Forbidden	⬅	403 Forbidden		
2xx OK REFER	⬅	2xx OK REFER				
		3 party call control applies				
		INVITE 3	➔		➔	INVITE
		180 Ringing	⬅		⬅	180 Ringing
		200 OK	⬅		⬅	200 OK
		ACK	➔		➔	ACK
NOTIFY(100)	⬅	NOTIFY(100)				
200 OK NOTIFY	➔	200 OK NOTIFY				
		INVITE 4	➔	INVITE		
		200 OK	⬅	200 OK		
		ACK	➔	ACK		
NOTIFY(200)	⬅	NOTIFY(200)				
200 OK NOTIFY	➔	200 OK NOTIFY				
BYE(S1)	➔	BYE				
200 OK (BYE)	⬅	200 OK (BYE)				
BYE	⬅	BYE(S2)				
200 OK (BYE)	➔	200 OK (BYE)				
		Apply post test routine				

TSS Netw/TransfereeAS	TP ECT_N02_010	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/4

Test purpose
Assured transfer. *The Transferee AS receives a 501 Not implemented indicating the Transferee does not support the REFER method.*
Ensure that three party call control applies at the Transferee AS when a 501 Not implemented is received upon a REFER was sent to the Transferee:
- A 202 Accepted for the REFER is sent.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
        Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
        message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
        message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		AS Transferor		ISC#2		ISC#3
		Establishment of session #1				
		Session #1 on hold				
REFER 1	➔	REFER				
		REFER	➔	REFER		
		501 Not implemented	⬅	501 Not implemented		
2xx OK REFER	⬅	2xx OK REFER				
		3 party call control applies				
		INVITE 3	➔		➔	INVITE
		180 Ringing	⬅		⬅	180 Ringing
		200 OK	⬅		⬅	200 OK
		ACK	➔		➔	ACK
NOTIFY(100)	⬅	NOTIFY(100)				
200 OK NOTIFY	➔	200 OK NOTIFY				
		INVITE 4	➔	INVITE		
		200 OK	⬅	200 OK		
		ACK	➔	ACK		
NOTIFY(200)	⬅	NOTIFY(200)				
200 OK NOTIFY	➔	200 OK NOTIFY				
BYE	➔	BYE				
200 OK (BYE)	⬅	200 OK (BYE)				
		Apply post test routine				

TSS Netw/TransfereeAS	TP ECT_N02_011	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/4
Test purpose **Blind transfer**. *The Transferee AS receives a 501 Not implemented indicating the Transferee does not support the REFER method.* Ensure that three party call control applies at the Transferee AS when a 501 Not implemented is received upon a REFER was sent to the Transferee: - A 202 Accepted for the REFER is sent. - An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor. - After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.			

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
       Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**			

Comments:			

```
ISC#1                              AS Transferor          ISC#2                    ISC#3
                           Establishment of session #1
                           Session #1 on hold

REFER 1              ➔     REFER
                                   REFER      ➔    REFER
                           501 Not implemented ⬅   501 Not implemented
2xx OK REFER         ⬅     2xx OK REFER
BYE                  ➔
200 OK (BYE)         ⬅
                           3 party call control applies
                                   INVITE 3   ➔                        ➔     INVITE
                                   180 Ringing ⬅                       ⬅     180 Ringing
                                   200 OK     ⬅                        ⬅     200 OK
                                   ACK        ➔                        ➔     ACK
NOTIFY(100)          ⬅
200 OK NOTIFY        ➔
                                   INVITE 4   ➔    INVITE
                                   200 OK     ⬅    200 OK
                                   ACK        ➔    ACK
NOTIFY(200)          ⬅     NOTIFY(200)
200 OK NOTIFY        ➔     200 OK NOTIFY
                           Apply post test routine
```

TSS Netw/TransfereeAS	TP ECT_N02_012	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND PICS 4.7.1/4

Test purpose

Consultative transfer. *The Transferee AS receives a 501 Not implemented indicating the Transferee does not support the REFER method.*

Ensure that three party call control applies at the Transferee AS when a 501 Not implemented is received upon a REFER was sent to the Transferee:

- A 202 Accepted for the REFER is sent.
- A reINVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.

SIP header values:

REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2,** P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		AS Transferor	ISC#2	ISC#3
		Establishment of session #1		
		Session #1 on hold		
		Establishment of session #2		
		Session #2 on hold		
REFER 1	➔	REFER		
			REFER ➔ REFER	
		501 Not implemented ⬅ 501 Not implemented		
2xx OK REFER	⬅	2xx OK REFER		
		3 party call control applies		
		INVITE 3 ➔		➔ INVITE
		180 Ringing ⬅		⬅ 180 Ringing
		200 OK ⬅		⬅ 200 OK
		ACK ➔		➔ ACK
NOTIFY(100)	⬅	NOTIFY(100)		
200 OK NOTIFY	➔	200 OK NOTIFY		
		INVITE 4 ➔ INVITE		
		200 OK ⬅ 200 OK		
		ACK ➔ ACK		
NOTIFY(200)	⬅	NOTIFY(200)		
200 OK NOTIFY	➔	200 OK NOTIFY		
BYE(S1)	➔	BYE		
200 OK (BYE)	⬅	200 OK (BYE)		
BYE	⬅	BYE(S2)		
200 OK (BYE)	➔	200 OK (BYE)		
		Apply post test routine		

TSS Netw/TransfereeAS	TP ECT_N02_013	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2 AND PICS 4.7.1/5

Test purpose
Assured transfer. The Transferee AS initiate the special REFER handling procedures directly.
Ensure that three party call control applies at the Transferee AS directly when the AS has prior **knowledge** that **the Transferee is not allowed** to receive or **does not support the REFER method**:
- A 202 Accepted for the REFER is sent.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1	AS Transferor	ISC#2	ISC#3
	Establishment of session #1		
	Session #1 on hold		
REFER 1 →	REFER		
2xx OK REFER ←	2xx OK REFER		
	3 party call control applies		
	INVITE 3 →		→ INVITE
	180 Ringing ←		← 180 Ringing
	200 OK ←		← 200 OK
	ACK →		→ ACK
NOTIFY(100) ←	NOTIFY(100)		
200 OK NOTIFY →	200 OK NOTIFY		
	INVITE 4 →	INVITE	
	200 OK ←	200 OK	
	ACK →	ACK	
NOTIFY(200) ←	NOTIFY(200)		
200 OK NOTIFY →	200 OK NOTIFY		
BYE →	BYE		
200 OK (BYE) ←	200 OK (BYE)		
	Apply post test routine		

TSS Netw/TransfereeAS	TP ECT_N02_014	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 4.7.1/5

Test purpose
Blind transfer. *The Transferee AS initiate the special REFER handling procedures directly.*
Ensure that three party call control applies at the Transferee AS directly when the AS has prior **knowledge** that
the Transferee is not allowed to receive or **does not support the REFER method**:

- A 202 Accepted for the REFER is sent.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted.
- An INVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
     Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2**, P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
     message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
     message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
REFER 1	➔	REFER			
2xx OK REFER	←	2xx OK REFER			
BYE	➔				
200 OK (BYE)	←				
		3 party call control applies			
		INVITE 3 ➔		➔	INVITE
		180 Ringing ←		←	180 Ringing
		200 OK ←		←	200 OK
NOTIFY(100)	←				
200 OK NOTIFY	➔				
		ACK ➔		➔	ACK
		INVITE 4 ➔	INVITE		
		200 OK ←	200 OK		
		ACK ➔	ACK		
NOTIFY(200)	←	NOTIFY(200)			
200 OK NOTIFY	➔	200 OK NOTIFY			
		Apply post test routine			

TSS Netw/TransfereeAS	TP ECT_N02_015	Reference 4.5.2.4.1.2.3, 4.7.2.9.7/ [3]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3 AND PICS 4.7.1/5

Test purpose
Consultative transfer. The Transferee AS initiate the special REFER handling procedures directly.
Ensure that three party call control applies directly at the Transferee AS when the AS has prior **knowledge** that **the Transferee is not allowed** to receive or **does not support the REFER method**:
- A 202 Accepted for the REFER is sent.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 100 Trying' after the REFER request is accepted.
- A reINVITE is sent to the Transfer Target containing the P-Asserted_identity of the Transferee and the Referred-By header with the identity of the Transferor.
- After the 200 OK is received, a reINVITE is sent to the Transferee containing the P-Asserted_identity of the Transfer Target and the Referred-By header with the identity of the Transferor.
- A NOTIFY request is sent to the Transferor containing a message/sipfrag body set to 'SIP/2.0 200 OK' after the referred communication is confirmed.

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
      Referred-By contains **ISC#1** URI
INVITE 3: Request URI = **ISC#3**, P-Asserted-Identity=ISC#2, Referred-By=ISC#1
INVITE 4: Request URI = **ISC#2,** P-Asserted-Identity=ISC#3, Referred-By=ISC#1
NOTIFY(100):Event contains **refer**
      message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY(200):Event contains **refer**
      message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		AS Transferor	ISC#2		ISC#3
		Establishment of session #1			
		Session #1 on hold			
		Establishment of session #2			
REFER 1	→	REFER			
2xx OK REFER	←	2xx OK REFER			
		3 party call control applies			
		INVITE 3 →		→	INVITE
		180 Ringing ←		←	180 Ringing
		200 OK ←		←	200 OK
		ACK →		→	ACK
NOTIFY(100)	←	NOTIFY(100)			
200 OK NOTIFY	→	200 OK NOTIFY			
		INVITE 4 →	INVITE		
		200 OK ←	200 OK		
		ACK →	ACK		
NOTIFY(200)	←	NOTIFY(200)			
200 OK NOTIFY	→	200 OK NOTIFY			
BYE(S1)	→	BYE			
200 OK (BYE)	←	200 OK (BYE)			
BYE	←	BYE(S2)			
200 OK (BYE)	→	200 OK (BYE)			
		Apply post test routine			

5.2.5   Actions at the transfer target's UE

TSS	TP	Reference	Selection expression
User/TransferTarget	ECT_U03_001	4.5.2.17	PICS 4.5.1/1 AND

Test purpose

The User Equipment receives the request to terminate a communication to the transferor.

Ensure that a User Equipment in a confirmed session receives an INVITE request to establish a new session that and a Replaces header is present (consultative transfer):

- The User Equipment accepts the request
- The User Equipment terminates the session indicated in the Replaces header

SIP header values:

INVITE: Request URI: **Gm#1**

          Referred-By contains any URI

          Replaces: <CallID Session #1>;to-tag=<Session #1;from-tag=<Session #1>

Comments:

UE (Gm#1)   **Test equipment (Gm#2)**

                                                   Establishment of session #1

INVITE	←	INVITE (Session #2)
180 Ringing	→	180 Ringing
200 OK INVITE	→	200 OK INVITE
ACK	←	ACK
BYE (Session #1)	→	BYE
200 OK BYE	←	200 OK BYE

                                                   Apply post test routine

TSS	TP	Reference	Selection expression
User/TransferTarget	ECT_U03_002	4.5.2.17	PICS 4.5.1/1 AND

Test purpose

The User Equipment receives a Referred-By header.

- Ensure that a User Equipment receives a Referred-By header in an INVITE request accepts the request.

SIP header values:

INVITE: Request URI: **Gm#1**

          Referred-By contains any URI

Comments:

UE (Gm#1)   **Test equipment (Gm#2)**

                                                   Establishment of session #1

INVITE	←	INVITE (Session #2)
180 Ringing	→	180 Ringing
200 OK INVITE	→	200 OK INVITE
ACK	←	ACK
BYE (Session #1)	→	BYE
200 OK BYE	←	200 OK BYE

                                                   Apply post test routine

5.2.6 Interaction with other services

5.2.6.1 Originating identification restriction (OIR)

TSS Interaction/OIR	TP ECT_N03_001	Reference 4.6.5	Selection expression PICS 4.5.1/2 AND PICS 7.7.2/1
Test purpose *Referred-By header Privacy regarding the requested privacy for the P-Asserted-Identity.* Ensure that a Privacy header is present and the value 'user' is included in addition if the Privacy header was received with the value 'id'.			

SIP header values:
REFER 1: Refer-To contains **ISC#3** URI; method=invite
          Referred-By contains **ISC#1** URI
          P-Asserted-Identity **ISC#1** URI
          Privacy: id
REFER 2: Refer-To contains **ISC#3** URI; method=invite
          Referred-By contains **ISC#1** URI
          P-Asserted-Identity **ISC#1** URI
          Privacy: id, user			

Comments:

```
ISC#1                          AS Transferor            ISC#2                       ISC#3
                          Establishment of session #1
                       Session #1 on hold
                          Establishment of session #2
                          ISC#1 transfers ISC#2 to ISC#3
REFER 1              ➔    REFER
                                REFER 2    ➔    REFER
                                2xx OK REFER  ⬅    2xx OK REFER
2xx OK REFER        ⬅    2xx OK REFER

NOTIFY(100)         ⬅                      ⬅    NOTIFY(100)
200 OK NOTIFY       ➔                      ➔    200 OK NOTIFY
                                INVITE     ⬅    INVITE 3
                                INVITE 4   ➔                        ➔    INVITE
                                180 Ringing ⬅                       ⬅    180 Ringing
                                180 Ringing ➔    180 Ringing
                                200 OK     ⬅                        ⬅    200 OK
                                200 OK     ➔    200 OK
                                                          ACK    ➔    ACK
NOTIFY(200)         ⬅                      ⬅    NOTIFY(200)
200 OK NOTIFY       ➔                      ➔    200 OK NOTIFY
BYE                 ➔                      ➔    BYE
200 OK (BYE)        ⬅                      ⬅    200 OK (BYE)
                          Apply post test routine
```

TSS Interaction/OIR	TP ECT_N03_002	Reference 4.6.5	Selection expression PICS 4.5.1/2 AND PICS 7.7.2/1

Test purpose
Privacy header in the INVITE of the Transferee is set according previous received privacy indication.
Ensure that the INVITE request sent to the transfer target has the same privacy requirements as previous received in initial call between the transferee and the transferor.
- Transferee sends a Privacy header value 'id' in the 200 OK INVITE of the initial call. The SUT inserts a Privacy header set to 'id' if the INVITE request sent to the Transfer target does not contain a Privacy header.

SIP header values:
200 OK INVITE 1: Privacy: id
INVITE 3: (no Privacy header)
INVITE 4: Privacy: id

Comments:

ISC#1		AS Transferor		ISC#2		ISC#3
INVITE 1	→		→	INVITE		
180 Ringing	←		←	180 Ringing		
200 OK (INVITE)	←		←	200 OK (INVITE) 1		
ACK	→		→	ACK		
INVITE (sendonly)	→		→	INVITE (sendonly)		
200 OK (recvonly)	←		←	200 OK (recvonly)		
ACK	→		→	ACK		
INVITE 2	→				→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
INVITE (sendonly)	→				→	INVITE (sendonly)
200 OK (recvonly)	←				←	200 OK (recvonly)
ACK	→				→	ACK
REFER	→	REFER				
		REFER	→	REFER		
		2xx OK REFER	←	2xx OK REFER		
2xx OK REFER	←	2xx OK REFER				
NOTIFY(100)	←		←	NOTIFY(100)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
		INVITE	←	INVITE 3		
		INVITE 4	→		→	INVITE
		180 Ringing	←		←	180 Ringing
		180 Ringing	→	180 Ringing		
		200 OK	←		←	200 OK
		200 OK	→	200 OK		
					ACK →	ACK
NOTIFY(200)	←		←	NOTIFY(200)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
BYE	→		→	BYE		
200 OK (BYE)	←		←	200 OK (BYE)		
		Apply post test routine				

TSS Interaction/OIR	TP ECT_N03_003	Reference 4.6.5	Selection expression PICS 4.5.1/2 AND PICS 7.7.2/1

Test purpose
Privacy header in the INVITE of the Transferee is set according previous received privacy indication.
Ensure that the INVITE request sent to the transfer target has the same privacy requirements as previous received in initial call between the transferee and the transferor.
- Transferee sends a Privacy header value 'id' in the INVITE of the initial call. The SUT inserts a Privacy header set to 'id' if the INVITE request sent to the Transfer target does not contain a Privacy header.

SIP header values:
INVITE 1: Privacy: id
INVITE 3: (no Privacy header)
INVITE 4: Privacy: id

Comments:

ISC#1		AS Transferor		ISC#2		ISC#3
INVITE	←		←	INVITE 1		
180 Ringing	→		→	180 Ringing		
200 OK (INVITE)	→		→	200 OK (INVITE) 1		
ACK	←		←	ACK		
INVITE (sendonly)	→		→	INVITE (sendonly)		
200 OK (recvonly)	←		←	200 OK (recvonly)		
ACK	→		→	ACK		
INVITE 2	→				→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
INVITE (sendonly)	→				→	INVITE (sendonly)
200 OK (recvonly)	←				←	200 OK (recvonly)
ACK	→				→	ACK
REFER	→	REFER				
		REFER	→	REFER		
		2xx OK REFER	←	2xx OK REFER		
2xx OK REFER	←	2xx OK REFER				
NOTIFY(100)	←		←	NOTIFY(100)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
		INVITE	←	INVITE 3		
		INVITE 4	→		→	INVITE
		180 Ringing	←		←	180 Ringing
		180 Ringing	→	180 Ringing		
		200 OK	←		←	200 OK
		200 OK	→	200 OK		
				ACK	→	ACK
NOTIFY(200)	←		←	NOTIFY(200)		
200 OK NOTIFY	→		→	200 OK NOTIFY		
BYE	→		→	BYE		
200 OK (BYE)	←		←	200 OK (BYE)		
		Apply post test routine				

5.2.6.2 Anonymous Communication Rejection and Communication Barring (ACR/CB)

TSS	TP	Reference	Selection expression
Interaction/ACR-CB	ECT_N04_001	4.6.9	PICS 4.5.1/2 AND PICS 7.7.2/2
Test purpose			
transfer requests with a Transfer Target that is barred by the served users Outgoing Communication Barring (OCB) rules. Ensure that the As does not accept a transfer requests with a transfer Target that is barred by the Transferor's Outgoing Communication Barring (OCB) rules.			
Precondition: The Transfer Target is barred by the Transferor's Outgoing Communication Barring rules.			
SIP header values: REFER 1: Refer-To contains **ISC#3** URI; method=invite Referred-By contains **ISC#1** URI			

Comments:			
ISC#1	**AS Transferor**	**ISC#2**	**ISC#3**
	Establishment of session #1		
INVITE	← ←	INVITE 1	
180 Ringing	→ →	180 Ringing	
200 OK (INVITE)	→ →	200 OK (INVITE)	
ACK	← ←	ACK	
INVITE 2 (sendonly)	→ →	INVITE (sendonly)	
200 OK (recvonly)	← ←	200 OK (recvonly)	
ACK	→ →	ACK	
	ISC#1 transfers ISC#2 to ISC#3		
REFER 1	→ REFER		
403 Forbidden	← 403 Forbidden		
	Apply post test routine		

5.2.6.3   CONFerence Calling (CONF)

TSS Interaction/CONF	TP ECT_N05_001	Reference 4.6.6	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 7.7.2/3

Test purpose
ECT does not apply if the Refer-To header of the REFER request dialogue contains the URI targeted a conference invited by REFER.
Ensure that ECT does not apply if the "Isfocue" parameter was received in the Contact header of a 1xx or 200 OK response in a dialogue to join a conference after received a REFER request to refer to the conference. The REFER request is rejected with a 4xx or 5xx or 6xx unsuccessful final response.

SIP header values:
INVITE: Request URI=conference factory URIlet's
200 OK (INVITE) 1:
          Contact: conference URI; isfocus
REFER 1: Request URI=ISC#2
          Refer-To conference URI;method=invite
          Referred-By **ISC#1** URI

Comments:

ISC#ISC#1   AS Transferor   AS CONF
                          A conference is already established
REFER   ←   ←   REFER
202 Accepted   →   →   202 Accepted

INVITE   →   →   INVITE
180 Ringing   ←   ←   180 Ringing
200 OK (INVITE)   ←   ←   200 OK (INVITE)
ACK   →   →   ACK

REFER   →   REFER
4xx or 5xx or 6xx Response ← 4xx or 5xx or 6xx Response
                          Apply post test routine

TSS Interaction/CONF	TP ECT_N05_002	Reference 4.6.6	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 7.7.2/3

Test purpose
ECT does not apply if the Refer-To header of the REFER request dialogue contains the URI targeted a conference invited by INVITE.
Ensure that ECT does not apply if the "Isfocue" parameter was received in the Contact header of a 1xx or 200 OK response in a dialogue to join a conference after received a INVITE request. The REFER request is rejected with a 4xx or 5xx or 6xx unsuccessful final response.

SIP header values:
INVITE: **ISC#1** URI
          Contact: conference URI; isfocus

Comments:
ISC#ISC#1   AS Transferor   AS CONF
                          A conference is already established
INVITE   ←   ←   INVITE
180 Ringing   →   →   180 Ringing
200 OK (INVITE)   →   →   200 OK (INVITE)
ACK   ←   ←   ACK

REFER   →   REFER
4xx or 5xx or 6xx Response ← 4xx or 5xx or 6xx Response
                          Apply post test routine

TSS	TP	Reference	Selection expression
Interaction/CONF	ECT_N05_003	4.6.6	PICS 4.5.1/2 AND PICS 4.7.1/1 AND PICS 7.7.2/3

Test purpose
ECT does not apply if the a conference controller invokes ECT.
Ensure that ECT does not apply if the conference controller invokes ECT. The REFER request is rejected with a 4xx or 5xx or 6xx unsuccessful final response.

SIP header values:
INVITE 1: conference factory URI

Comments:
ISC#ISC#1   **AS Transferor**   **AS CONF**
INVITE 1   ➔   ➔   INVITE
200 OK (INVITE)   ⬅   ⬅   200 OK (INVITE)

                          Invite another user to the conference

REFER   ➔   REFER
4xx or 5xx or 6xx Response ⬅   4xx or 5xx or 6xx Response
                          Apply post test routine

5.2.6.4   Explicit Communication Transfer (ECT)

TSS	TP	Reference	Selection expression
Interaction/ECT	ECT_N06_001	4.6.10.2, 4.6.10.3	PICS 4.5.1/2 AND PICS 4.7.1/1

Test purpose
*Interaction with ECT: **Blind transfer**.*
A session between ISC#1 and ISC#2 exists and was transferred before.
Ensure that if the INVITE dialog on which the REFER is received is a previously transferred communication indicated by the presence of a Referred-By header in the INVITE request the:
- REFER is forwarded and the value of the Refer-To header is replaced by the ECT session Identifier.
- The Request URI of the INVITE request received to forward to the Transfer Target is replaced with the value of the Transfer Target.

SIP header values:
REFER 1: Refer-To **ISC#3** URI; method=invite
        Referred-By **ISC#1** URI
REFER 2: Refer-To **ECT Session Identifier** URI; method=invite
        Referred-By **ISC#1** URI
INVITE 2: Request URI = **ECT Session Identifier** URI
        Referred-By **ISC#1** URI
INVITE 3: Request URI = **ISC#3** URI
        Referred-By **ISC#1** URI

Comments:
ISC#ISC#1   **AS Transferor**   **ISC#ISC#2**   **ISC#ISC#3**
        A transferred communication already exists
                Session #1 on hold
REFER 1   ➔   REFER
                              REFER 2   ➔   REFER
                              2xx OK REFER ⬅   2xx OK REFER
2xx OK REFER   ⬅   2xx OK REFER
BYE   ➔   ➔   BYE
200 OK (BYE)   ⬅   ⬅   200 OK (BYE)
                              INVITE   ⬅   INVITE 2 (S2)
                              INVITE 3   ➔   ➔   INVITE
                              180 Ringing ⬅   ⬅   180 Ringing
                              180 Ringing ➔   180 Ringing
                              200 OK   ⬅   ⬅   200 OK
                              200 OK   ➔   200 OK
                                                          ACK ➔   ACK
                          Apply post test routine

TSS Interaction/ECT	TP ECT_N06_002	Reference 4.6.10.2, 4.6.10.3	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2

Test purpose
*Interaction with ECT: **Assured transfer**.*
A session between ISC#1 and ISC#2 exists and was transferred before.
Ensure that if the INVITE dialog on which the REFER is received is a previously transferred communication indicated by the presence of a Referred-By header in the INVITE request the:
- REFER is forwarded and the value of the Refer-To header is replaced by the ECT session Identifier.
- The Request URI of the INVITE request received to forward to the Transfer Target is replaced with the value of the Transfer Target.

SIP header values:
REFER 1: Refer-To **ISC#3** URI; method=invite
      Referred-By **ISC#1** URI
REFER 2: Refer-To **ECT Session Identifier** URI; method=invite
      Referred-By ISC#ISC#1 URI
INVITE 2: Request URI = **ECT Session Identifier** URI
      Referred-By **ISC#1** URI
INVITE 3: Request URI = **ISC#3** URI
      Referred-By **ISC#1** URI

Comments:

ISC#1	AS Transferor	ISC#2	ISC#3
	A transferred communication already exists		
	Session #1 on hold		
REFER 1 ➔	REFER		
	REFER 2 ➔	REFER	
	2xx OK REFER ←	2xx OK REFER	
	INVITE ←	INVITE 2 (S2)	
	INVITE 3 ➔		➔ INVITE
	180 Ringing ←		← 180 Ringing
	180 Ringing ➔	180 Ringing	
	200 OK ←		← 200 OK
	200 OK ➔	200 OK	
		ACK ➔	ACK
	Apply post test routine		

TSS Interaction/ECT	TP ECT_N06_003	Reference 4.6.10.2, 4.6.10.3	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3

Test purpose
*Interaction with ECT: **Consultative transfer**.*
A session between ISC#1 and ISC#2 exists and was transferred before.
Ensure that if the INVITE dialog on which the REFER is received is a previously transferred communication indicated by the presence of a Referred-By header in the INVITE request the:
- REFER is forwarded and the value of the Refer-To header is replaced by the ECT session Identifier.
- The Request URI of the INVITE request received to forward to the Transfer Target is replaced with the value of the Transfer Target.

SIP header values:
INVITE 1: Request URI = **ISC#3**
REFER 1: Refer-To **ISC#3 URI;** method=invite?Replaces=**call-id-S2**%3B **to-tag=S2**%3B
                  from-tag=S2&Require=replaces
       Referred-By **ISC#1** URI
REFER 2: Refer-To contains **ECT Session Identifier** URI; method=invite
       Referred-By contains **ISC#1** URI
INVITE 2: Request URI = **ECT Session Identifier** URI   Referred-By **ISC#1** URI
INVITE 3: Request URI = **ISC#3** URI
       Replaces=**call-id-S2**; **to-tag=S2**; **from-tag=S2**
       Referred-By **ISC#1** URI
       Require: replaces

Comments:

ISC#1	AS Transferor		ISC#2		ISC#3
A transferred communication already exists					
INVITE 1 (S1)	→			→	INVITE
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
INVITE (sendonly)	→			→	INVITE (sendonly)
200 OK (recvonly)	←			←	200 OK (recvonly)
ACK	→			→	ACK
REFER 1	→	REFER			
		REFER 2 →	REFER		
		2xx OK REFER ←	2xx OK REFER		
2xx OK REFER	←	2xx OK REFER			
INVITE (inactive)	←		←	INVITE (inactive)	
200 OK (inactive)	→		→	200 OK (inactive)	
ACK	←		←	ACK	
NOTIFY(100)	←		←	NOTIFY(100)	
200 OK NOTIFY	→		→	200 OK NOTIFY	
		INVITE ←	INVITE 2 (S3)		
		INVITE 3 →		→	INVITE
		180 Ringing ←		←	180 Ringing
		180 Ringing →	180 Ringing		
		200 OK ←		←	200 OK
		200 OK →	200 OK		
			ACK →		ACK
NOTIFY(200)	←		←	NOTIFY(200)	
200 OK NOTIFY	→		→	200 OK NOTIFY	
BYE	←			←	BYE (S2)
200 OK (BYE)	→			→	200 OK (BYE)
BYE (S1)	→		→	BYE	
200 OK (BYE)	←		←	200 OK (BYE)	
	Apply post test routine				

Annex A (informative):
Bibliography

- ETSI TS 123 228: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228 version 12.10.0 Release 12)".

History

Document history		
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