ETSI TS 186 010-2 V4.1.1 (2017-12)

TECHNICAL SPECIFICATION

**Core Network and Interoperability Testing (INT);
Conference (CONF) using IP Multimedia (IM)
Core Network (CN) subsystem;
Conformance test specification;
(3GPP™ Release 12);
Part 2: Test Suite Structure and Test Purposes (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

Important notice

The present document can be downloaded from:
http://www.etsi.org/standards-search

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx

If you find errors in the present document, please send your comment to one of the following services:
https://portal.etsi.org/People/CommiteeSupportStaff.aspx

Copyright Notification

Contents

Intellectual Property Rights

Essential patents

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

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

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

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 Conference (CONF) 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)";

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

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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1   Scope

The present document provides the Implementation Conformance Statement (ICS) pro forma for the Conference (CONF) service based on stage one and two of the ISDN CONF supplementary service defined in ETSI TS 124 605 [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 124 605 (V12.5.0) (04-2015): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Conference (CONF) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.605 version 12.5.0 Release 12)".

[2]   ETSI TS 124 147: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Conferencing using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3 (3GPP TS 24.147 Release 12)".

[3]   ETSI TS 186 010-1: "Core Network and Interoperability Testing (INT); Conference (CONF) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance test specification (3GPP Release 12); Part 1: Protocol Implementation Conformance Statement (PICS)".

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.

[i.1]   ISO/IEC 9646-1: "Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 1: General concepts".

3   Definitions, symbols and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 124 605 [1] and the following apply:

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [i.1].

PICS pro forma: Refer to ISO/IEC 9646-1 [i.1].

Point of Control and Observation: Refer to ISO/IEC 9646-1 [i.1].

Protocol Implementation Conformance Statement (PICS): Refer to ISO/IEC 9646-1 [i.1].

System Under Test (SUT): Refer to ISO/IEC 9646-1 [i.1].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [i.1].

NOTE: This may contain additional information.

3.2   Symbols

For the purposes of the present document, the symbols given in ETSI TS 124 605 [1] apply.

3.3   Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 605 [1] and the following apply:

CONF	CONFerence calling
IUT	Implementation Under Test
SUT	System Under Test
UE	User Equipment

4   Test Suite Structure (TSS) and configuration

4.1   Table of Test Suite Structure

Table 4.1-1: Test suite structure

ConferenceFocus		
	CreateConf	CONF_N01_xxx
	JoinConf	CONF_N02_xxx
	InviteToConf	CONF_N03_xxx
	LeaveConf	CONF_N04_xxx
	RemoveFromConf	CONF_N05_xxx
	TerminateConf	CONF_N06_xxx
UserEquipment		
		CONF_U01_xxx
Interaction		
	TIR	CONF_N08_xxx
	OIR	CONF_N09_xxx
	ACR-CB	CONF_N10_xxx

4.2 Configuration

4.2.0 Introduction

The scope of the present document is to test the signalling and procedural aspects of the stage 3 requirements as described in ETSI TS 124 605 [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.

4.2.1 Testing of the AS

The AS entity is responsible for performing and managing services. The ISC interface is the appropriate access point for testing.
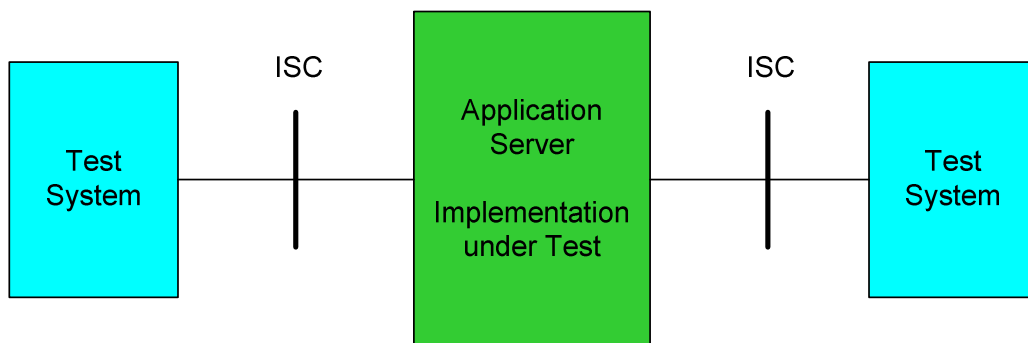

Figure 4.2-1: Applicable interface to test AS functionalities

If the ISC interface is not accessible it is also possible to perform the test of the AS using any NNI (Mw, Mg, Mx) interface (see figure 4.2-2). In case only the Gm interface is accessible this interface can be used instead for testing, but the verification of all requirements may not be possible.
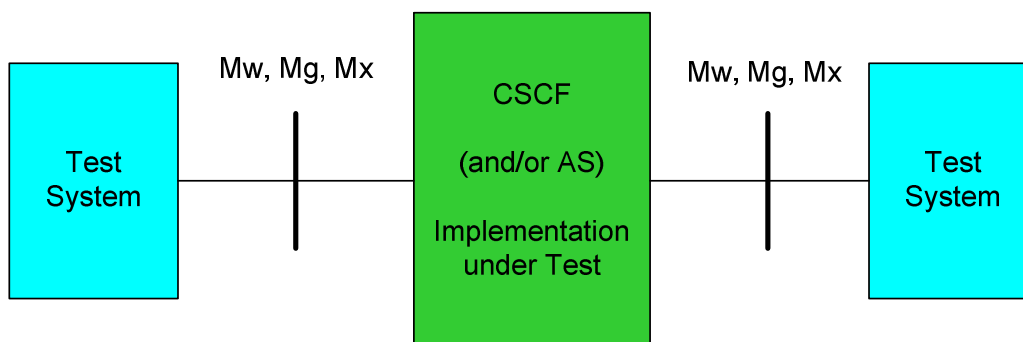
Figure 4.2-2: Applicable interfaces for tests using a (generic) NNI interface

4.2.2 Testing of the UE

There are special clauses in the protocol standard describing the procedures that apply at the originating and terminating user equipment. Therefore the test configuration in figure 4.2-3 has been chosen.
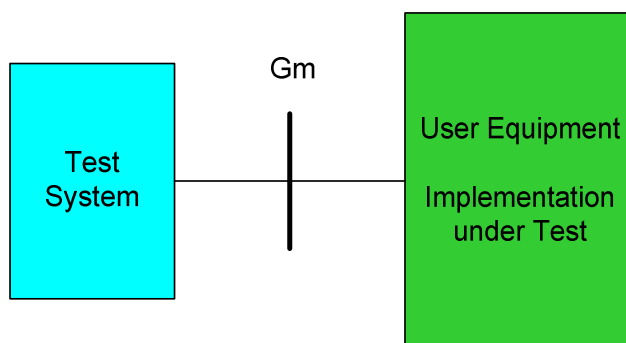

Figure 4.2-3: Applicable configuration to test UE functionalities

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. "CONF"
<iut>	=	type of IUT:	U User N Network yyy service
<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 124 605 [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 186 010-1 [3].

5.2   Signalling requirements

5.2.1   Conference Focus

5.2.1.1   Conference creation

TSS	TP	Reference	Selection expression
ConferenceFocus/CreateConf	CONF_N01_001	5.3.2.3.1, 5.3.3 [**2**]	PICS 4.5.1/2
Test purpose			
*Conference creation with a **conference factory URI**. Conference event package subscribed.* Ensure that a conference can be created by a UE using the conference factory URI. The "isfocus" feature parameter indicated in Contact header is received in the 200 OK (INVITE). In addition the conference participant subscribes to the conference event package and receives a NOTIFY request describing the conference status.			
SIP header values: INVITE: Request URI indicating the conference factory URI 200 OK: conference URI and "isfocus" feature parameter included in Contact header field SUBSCRIBE: Request URI indicating the conference URI Event header contains "conference" NOTIFY: Event contains **conference**; Subscription-State contains **active; expires=xxxx**			
Comments:			
ISC#1 **Focus** INVITE ➔ 200 OK (INVITE) ⬅ ACK ➔ SUBSCRIBE ➔ 200 OK (SUBSCRIBE) ⬅ NOTIFY ⬅ 200 OK NOTIFY ➔ **Apply post test routine**			

TSS	TP	Reference	Selection expression
ConferenceFocus/CreateConf	CONF_N01_002	5.3.2.3.1 [**2**]	PICS 4.5.1/2
Test purpose			
*Conference creation with a **conference factory URI**. Conference event package not subscribed.* Ensure that a conference can be created by a UE using the conference factory URI. The "isfocus" feature parameter indicated in Contact header is received in the 200 OK (INVITE). The conference participant does not subscribe to the conference event package.			
SIP header values: INVITE: Request URI indicating the conference factory URI 200 OK: conference URI and "isfocus" feature parameter included in Contact header field			
Comments: **ISC#1** **Focus** INVITE ➔ 200 OK (INVITE) ⬅ ACK ➔ **Apply post test routine**			

TSS ConferenceFocus/CreateConf	TP CONF_N01_003	Reference 5.3.2.3.2, 5.3.3 [2]	Selection expression PICS 4.5.1/2
Test purpose			
*Conference creation with a **conference URI**. Conference event package subscribed.* Ensure that a conference can be created by a UE using the conference URI. The "isfocus" feature parameter indicated in Contact header is received in the 200 OK (INVITE). In addition the conference participant subscribes to the conference event package and receives a NOTIFY request describing the conference status.			
SIP header values:			

INVITE: Request URI indicating the conference URI
 200 OK: "isfocus" feature parameter included in Contact header field
                conference URI contained in the Contact header field
 SUBSCRIBE: Request URI indicating the conference URI
                Event header contains "conference"
 NOTIFY: Event contains **conference**; Subscription-State contains **active; expires=xxxx**			

Comments:			

```
ISC#1                                      Focus
INVITE                        →


200 OK (INVITE)               ←
ACK                           →

SUBSCRIBE                     →
200 OK (SUBSCRIBE)            ←
NOTIFY                        ←
200 OK NOTIFY                 →
                     Apply post test routine
```

TSS ConferenceFocus/**CreateConf**	TP CONF_N01_004	Reference 5.3.2.3.2 [2]	Selection expression PICS 4.5.1/2
Test purpose			
*Conference creation with a **conference URI**. Conference event package not subscribed.* Ensure that a conference can be created by a UE using the conference URI. The "isfocus" feature parameter indicated in Contact header is received in the 200 OK (INVITE). The conference participant does not subscribe to the conference event package.			
SIP header values:			
INVITE: Request URI indicating the conference URI 200 OK: "isfocus" feature parameter indicated in Contact header field conference URI contained in the Contact header field			
Comments:			

```
ISC#1                                      Focus
INVITE                        →


200 OK (INVITE)               ←
ACK                           →
                     Apply post test routine
```

TSS ConferenceFocus/CreateConf	TP CONF_N01_005	Reference 5.3.2.3.1 [2]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose
Conference creation with a conference factory URI. Preconditions indicated a conference URI is sent in the first provisional response.

Ensure that a conference can be created by a UE using the conference factory URI. Preconditions are requested by the originating UE. The "isfocus" feature parameter indicated in Contact header is received in the 200 OK (INVITE).

SIP header values:
INVITE: Request URI indicating the conference factory URI
       SDP   a=curr:qos local none
             a=curr:qos remote none
             a=des:qos mandatory local sendrecv
             a=des:qos none remote sendrecv

183   conference URI contained in the Contact header field
       SDP   a=curr:qos local none
             a=curr:qos remote none
             a=des:qos mandatory local sendrecv
             a=des:qos mandatory remote sendrecv
             a=conf:qos remote sendrecv

UPDATE:
       SDP   a=curr:qos local sendrecv
             a=curr:qos remote none
             a=des:qos mandatory local sendrecv
             a=des:qos mandatory remote sendrecv

200 OK UPDATE
       SDP   a=curr:qos local sendrecv
             a=curr:qos remote sendrecv
             a=des:qos mandatory local sendrecv
             a=des:qos mandatory remote sendrecv

200 OK: "isfocus" feature parameter included in Contact header field
             conference URI contained in the Contact header field

Comments:

ISC#1		Focus
INVITE	→	
183 Session Progress	←	
PRACK	→	
200 OK PRACK	←	
UPDATE	→	
200 OK UPDATE	←	
200 OK (INVITE)	←	
ACK	→	
	Apply post test routine	

TSS ConferenceFocus/CreateConf	TP CONF_N01_006	Reference 5.3.2.3.1 [2]	Selection expression PICS 4.5.1/2

Test purpose
Conference creation with a conference factory URI not allocated in the focus, unsuccessful.

Ensure that a conference cannot be created by a UE using a conference factory URI not allocated in the focus. The request is rejected by the focus with a **488 Not Acceptable Here** final response.

SIP header values:
INVITE: Request URI indicating a conference factory URI not allocated in the focus

Comments:

ISC#1		Focus
INVITE	→	
488 Not Acceptable Here	←	
ACK	→	

5.2.1.2   Joining a conference

TSS		TP	Reference	Selection expression
ConferenceFocus/JoinConf		CONF_N02_001	5.3.2.4.1 [2]	PICS 4.5.1/2
Test purpose				
*Participant **dial-in** the conference, the conference URI is used.* UE1 (via ISC#1) established a conference. UE2 (via ISC#2) joins in that conference by sending an INVITE request to the conferencing AS (the conference URI is known at the UE2). The request is successful.				
SIP header values:				
INVITE 2: Request URI indicating the conference URI 18x "isfocus" feature parameter included in Contact header field 200 OK: "isfocus" feature parameter included in Contact header field conference URI contained in the Contact header field				
Comments:				

```
ISC#1                                   Focus              ISC#2
                               Conference creation
INVITE                    ➔    INVITE
200 OK (INVITE)           ⬅    200 OK (INVITE)
ACK                       ➔    ACK


                         UE#2 joining in the conference
                                       INVITE    ⬅    INVITE 2
                                          18x    ➔    18x
                                200 OK INVITE    ➔    200 OK INVITE
                                          ACK    ⬅    ACK
                               Apply post test routine
```

TSS		TP	Reference	Selection expression
ConferenceFocus/JoinConf		CONF_N02_002	5.3.2.4.1 [2]	PICS 4.5.1/2
Test purpose				
*Participant **dial-in** the conference, the conference URI is not allocated, the request is rejected.* UE2 (via ISC#2) tries to join in a conference but the conference URI in the INVITE request is not allocated at the focus. The request is rejected with the final response 4xx.				
SIP header values:				
INVITE: Request URI contained the conference URI not allocated in the focus (PIXIT)				
Comments:				

```
ISC#1                                   Focus              ISC#2
                         UE#2 joining in the conference
                                       INVITE    ⬅    INVITE 2
                                          4xx    ➔    4xx
                                          ACK    ⬅    ACK
```

5.2.1.3 Inviting other users to a conference

TSS ConferenceFocus/InviteToConf	TP CONF_N03_001	Reference 5.3.2.5.2, 5.3.2.5.4 [2]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2
Test purpose *Inviting participant by sending REFER to the focus.* UE1 (via ISC#1) established a conference and invites UE2 (connected via ISC#2) to join into the conference. UE1 sends a REFER to the focus; the focus sends an INVITE request to UE2 to invite it to the conference.			
SIP header values: REFER: Request URI indicating the **conference URI** 　　　Refer-To contains the URI of **UE2**, method=INVITE 　　　Referred-By contains SIP URI of **UE1** INVITE 2: Request URI indicating the address of UE2 　　　The P-Asserted-Identity contains the conference URI. 　　　conference URI and "isfocus" feature parameter indicated in Contact header field 　　　Referred-By contains SIP or tel URI of **UE1** NOTIFY 1 Event contains **refer**; Subscription-State contains **active** 　　　message/sipfrag contains **SIP/2.0 100 Trying** NOTIFY 2 Event contains **refer**; Subscription-State contains **terminated** 　　　message/sipfrag contains **SIP/2.0 200 OK**			
Comments:			

```
ISC#1                                Focus                   ISC#2
                            Conference creation
INVITE                   →   INVITE
200 OK (INVITE)          ←   200 OK (INVITE)
ACK                      →   ACK
                       UE#1 invites UE#2 to the conference
REFER                    →   REFER
2xx REFER                ←   2xx REFER

                        Focus dials out to invite UE#2
                                     INVITE 2   →   INVITE
NOTIFY                   ←   NOTIFY 1
200 OK NOTIFY            →   200 OK NOTIFY
                                    180 Ringing   ←   180 Ringing
                                    200 OK INVITE ←   200 OK INVITE
                                         ACK      →   ACK
NOTIFY                   ←   NOTIFY 2
200 OK NOTIFY            →   200 OK NOTIFY
                            Apply post test routine
```

TSS ConferenceFocus/InviteToConf	TP CONF_N03_002	Reference 5.3.2.5.3, 5.3.2.5.4 [2]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/3
Test purpose *Inviting participant by sending a participant list to the focus.* UE1 (via ISC#1) established a conference. A participant list is contained in the INVITE to create the conference. The AS establishes a communication to the UE2 (via ISC#2) indicated in the participant list.			

SIP header values:
INVITE 1: Request URI=Focus
        <resource-lists
          <entry uri="sip:UE#2 cp:copycontrol="to" />
 	
INVITE 2: Request URI = UE#2
        The P-Asserted-Identity contains the conference URI.
        conference URI and "isfocus" feature parameter indicated in Contact header field			

Comments:
ISC#1   **Focus**   **ISC#2**
                            Conference creation
INVITE 1   ➔   INVITE
200 OK (INVITE)   ←   200 OK (INVITE)
ACK   ➔   ACK
                     Focus dials out to invite UE#2
                      INVITE 2 ➔   INVITE
             200 OK INVITE ←   200 OK INVITE
                      ACK ➔   ACK
                    Apply post test routine			

TSS ConferenceFocus/InviteToConf	TP CONF_N03_004	Reference 5.3.1.3.3, 5.3.1.5.2 [2]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/2

Test purpose

Three-way session creation. REFER is sent to the participants.

Ensure that it is possible that two active sessions S1 and S2 towards UE2 (via ISC#2) and UE3 (via ISC#3) are joined in a three way session by UE1 and that the existing sessions S1 and S2 can be released by the served user UE1. The remote users receive a REFER request with the Refer-To header containing the address of the Focus directly from UE1. The remote users use the URI of the Refer-To header as the Request URI of the INVITE request.

SIP header values:

REFER (S1): Request line=UE#2
             Refer-To=Focus; method=INVITE
             Referred-By=UE#1
REFER (S2): Request line=UE#3
             Refer-To=Focus; method=INVITE
             Referred-By=UE#1
INVITE (S4): Request URI=Focus
             Referred-By=UE#1
INVITE (S5): Request URI=Focus
             Referred-By=UE#1

Comments:

ISC#1		Focus	ISC#2		ISC#3
		Establish session #1			
		Session #1 on hold			
		Establish session #2			
		Session #2 on hold			
		Conference creation (session #3)			
INVITE (S3)	→	INVITE			
200 OK (INVITE)	←	200 OK (INVITE)			
ACK	→	ACK			
REFER (S1)	→		→	REFER	
2xx REFER	←		←	2xx REFER	
NOTIFY (100)	←		←	NOTIFY (100)	
200 OK (NOTIFY)	→		→	200 OK (NOTIFY)	
		INVITE ←	INVITE (S4)		
		200 OK (INVITE) →	200 OK (INVITE)		
		ACK ←	ACK		
NOTIFY (200)	←		←	NOTIFY (200)	
200 OK (NOTIFY)	→		→	200 OK (NOTIFY)	
BYE (S1)	→		→	BYE (S1)	
200 OK (BYE)	←		←	200 OK (BYE)	
REFER (S2)	→				→ REFER
2xx REFER	←				← 2xx REFER
NOTIFY (100)	←				← NOTIFY (100)
200 OK (NOTIFY)	→				→ 200 OK (NOTIFY)
		INVITE ←			← INVITE (S5)
		200 OK (INVITE) →			→ 200 OK (INVITE)
		ACK ←			← ACK
NOTIFY (200)	←				← NOTIFY (200)
200 OK (NOTIFY)	→				→ 200 OK (NOTIFY)
BYE (S1)	→				→ BYE (S2)
200 OK (BYE)	←				← 200 OK (BYE)
		Apply post test routine			

TSS	TP	Reference	Selection expression
ConferenceFocus/InviteToConf	CONF_N03_005	5.3.1.3.3, 5.3.1.5.3, 5.3.2.5.2 [2]	PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose

Three-way session creation. REFER is sent to the Focus.

Ensure that it is possible that two active sessions S1 and S2 towards UE2 (via ISC#2) and UE3 (via ISC#3) are joined in a three way session by UE1 and that the existing sessions S1 and S2 can be released by the served user UE1. UE1 sends two REFER requests to the conference focus which then sends INVITE requests to UE2 and UE3 containing the Referred-By header indicating UE1.

SIP header values:

REFER (S1): Request line=Focus
             Refer-To=UE#2; method=INVITE
             Referred-By=UE#1
REFER (S1): Request line=Focus
             Refer-To=UE#3; method=INVITE
             Referred-By=UE#1
INVITE (S4): Request URI=UE#2
              Referred-By=UE#1
INVITE (S5): Request URI=UE#3
              Referred-By=UE#1

Comments:

ISC#1		Focus		ISC#2		ISC#3
		Establish session #1				
		Session #1 on hold				
		Establish session #2				
		Session #2 on hold				
		Conference creation (session #3)				
INVITE (S3)	→	INVITE				
200 OK (INVITE)	←	200 OK (INVITE)				
ACK	→	ACK				
REFER (S1)	→	REFER				
2xx REFER	←	2xx REFER				
NOTIFY (100)	←	NOTIFY (100)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
		INVITE (S4) →		INVITE		
		200 OK (INVITE) ←		200 OK (INVITE)		
		ACK →		ACK		
NOTIFY (200)	←	NOTIFY (200)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
BYE (S1)	→		→	BYE (S1)		
200 OK (BYE)	←		←	200 OK (BYE)		
REFER (S2)	→	REFER				
2xx REFER	←	2xx REFER				
NOTIFY (100)	←	NOTIFY (100)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
		INVITE (S5) →		→		INVITE
		200 OK (INVITE) ←		←		200 OK (INVITE)
		ACK →		→		ACK
NOTIFY (200)	←	NOTIFY (200)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
BYE (S1)	→			→		BYE (S2)
200 OK (BYE)	←			←		200 OK (BYE)
		Apply post test routine				

TSS ConferenceFocus/InviteToConf	TP CONF_N03_006	Reference 5.3.1.3.3, 5.3.1.5.3, 5.3.2.5.2 [2]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/4

Test purpose

Three-way session creation. REFER is sent to the Focus. Replaces header included in the REFER.

Ensure that it is possible that two active sessions S1 and S2 towards UE2 (via ISC#2) and UE3 (via ISC#3) are joined in a three way session by UE1 and that the existing sessions S1 and S2 can be released by the remote users UE2 and UE3. UE1 sends two REFER requests including Replaces headers to the conference focus which then sends INVITE requests to UE2 and UE3 containing the Referred-By header indicating UE1 and containing the Replaces header indicating the original dialog sessions.

SIP header values:

REFER (S1): Request line=Focus
            Refer-To=UE#2; method=INVITE?Replaces=S1;to-tag=S1;from-tag=S1
            Referred-By=UE#1
REFER (S1): Request line=Focus
            Refer-To=UE#3; method=INVITE?Replaces=S2;to-tag=S2;from-tag=S2
            Referred-By=UE#1
INVITE (S4): Request URI=UE#2
            Referred-By=UE#1
            Replaces=S1;to-tag=S1;from-tag=S1
INVITE (S5): Request URI=UE#3
            Referred-By=UE#1
            Replaces=S2;to-tag=S2;from-tag=S2

Comments:

ISC#1		Focus		ISC#2		ISC#3
		Establish session #1				
		Session #1 on hold				
		Establish session #2				
		Session #2 on hold				
		Conference creation (session #3)				
INVITE (S3)	→	INVITE				
200 OK (INVITE)	←	200 OK (INVITE)				
ACK	→	ACK				
REFER (S1)	→	REFER				
202 Accepted	←	202 Accepted				
NOTIFY (100)	←	NOTIFY (100)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
		INVITE (S4)	→	INVITE		
		200 OK (INVITE)	←	200 OK (INVITE)		
		ACK	→	ACK		
NOTIFY (200)	←	NOTIFY (200)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
BYE (S1)	←		←	BYE (S1)		
200 OK (BYE)	→		→	200 OK (BYE)		
REFER (S2)	→	REFER				
2xx REFER	←	2xx REFER				
NOTIFY (100)	←	NOTIFY (100)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
		INVITE (S5)	→		→	INVITE
		200 OK (INVITE)	←		←	200 OK (INVITE)
		ACK	→		→	ACK
NOTIFY (200)	←	NOTIFY (200)				
200 OK (NOTIFY)	→	200 OK (NOTIFY)				
BYE (S1)	←				←	BYE (S2)
200 OK (BYE)	→				→	200 OK (BYE)
		Apply post test routine				

TSS	TP	Reference	Selection expression
ConferenceFocus/InviteToConf	CONF_N03_007	4.5.2.2.1 [2]	PICS 4.5.1/2
Test purpose			
Referred-By value does not contain a valid identity of the requesting user. Ensure that the invalid identity in the Referred-By header received in the REFER request from UE1 is replaced with the valid value matching the REFER request's P-Asserted-Identity when sending the INVITE request to UE2.			
SIP header values:			

REFER 1: Request line=Focus
          Refer-To=UE#2; method=INVITE
          Referred-By=any value not indicating UE#1(PIXIT)
          P-Asserted-Identity=UE#1
INVITE 1: Request URI=UE#2
          Referred-By=UE#1			

Comments:

```
ISC#1                              Focus                    ISC#2
                          Conference creation
INVITE                →    INVITE
200 OK (INVITE)       ←    200 OK (INVITE)
ACK                   →    ACK
                    UE#1 invites UE#2 to the conference
REFER 1               →    REFER
202 Accepted          ←    202 Accepted

                        Focus dials out to invite UE#2
                                   INVITE 1   →    INVITE
NOTIFY                ←    NOTIFY 1
200 OK NOTIFY         →    200 OK NOTIFY
                                   200 OK INVITE  ←    200 OK INVITE
                                   ACK        →    ACK
NOTIFY                ←    NOTIFY 2
200 OK NOTIFY         →    200 OK NOTIFY
                          Apply post test routine
```

TSS	TP	Reference	Selection expression
ConferenceFocus/InviteToConf	CONF_N03_008	4.5.2.2.1 [2]	PICS 4.5.1/2

Test purpose

Referred-By header not present.

Ensure that the missing Referred-By header in the received REFER request from UE1 is inserted with the valid value matching the REFER request's P-Asserted-Identity when sending the INVITE request to UE2.

SIP header values:

REFER 1: Request line=Focus
        Refer-To=UE#2; method=INVITE
        P-Asserted-Identity=UE#1
INVITE 1:   Request URI=UE#2
        Referred-By=UE#1

Comments:

ISC#1		Focus		ISC#2
		Conference creation		
INVITE 1	➔	INVITE		
200 OK (INVITE)	←	200 OK (INVITE)		
ACK	➔	ACK		
		UE#1 invites UE#2 to the conference		
REFER 1	➔	REFER		
2xx REFER	←	2xx REFER		
		Focus dials out to invite UE#2		
		INVITE 1	➔	INVITE
NOTIFY	←	NOTIFY 1		
200 OK NOTIFY	➔	200 OK NOTIFY		
		180 Ringing	←	180 Ringing
		200 OK INVITE	←	200 OK INVITE
		ACK	➔	ACK
NOTIFY	←	NOTIFY 2		
200 OK NOTIFY	➔	200 OK NOTIFY		
		Apply post test routine		

5.2.1.4   Leaving a conference

TSS	TP	Reference	Selection expression
ConferenceFocus/LeaveConf	CONF_N04_001	5.3.2.6.1 [2]	PICS 4.5.1/2

Test purpose

A participant leaves the conference.

UE#2 wishes to leave the conference by sending a BYE request to the focus in accordance to the basic call procedures.

Comments:

ISC#1		Focus		ISC#2
		Conference creation		
INVITE	➔	INVITE		
200 OK (INVITE)	←	200 OK (INVITE)		
ACK	➔	ACK		
REFER	➔			
202 Accepted	←			
		Focus dials out to invite UE#2		
		INVITE	➔	INVITE 2
		180 Ringing	←	180 Ringing
		200 OK INVITE	←	200 OK INVITE
		ACK	➔	ACK
		Conference communication		
		UE#2 leaves the conference		
			←	BYE
			➔	200 OK BYE
		Apply post test routine		

5.2.1.5   Removing a conference participant from a conference

TSS ConferenceFocus/RemoveFromConf	TP CONF_N05_001	Reference 5.3.2.6.2.2, 5.3.2.6.2.3 [**2**]	Selection expression PICS 4.5.1/2

Test purpose

The conference owner asks the focus to remove a participant from the conference.

UE1 (via ISC#1) sends a REFER request to removes UE2 from the conference. The focus sends a BYE request to UE2 (via ISC#2).

SIP header values:

REFER 1: Request URI contained the URI of **conference URI**
         Refer-To contains the **UE#2 URI**, method=BYE
         Referred-By contains the URI of **UE#1 URI**
NOTIFY 2 Event contains **conference**;
         Subscription-State
         contains **active**
         message/sipfrag contains **SIP/2.0 200 OK**

Comments:

ISC#1		Focus		ISC#2
		Conference creation		
INVITE	→	INVITE		
200 OK (INVITE)	←	200 OK (INVITE)		
ACK	→	ACK		
REFER 1	→			
2xx REFER	←			
		UE#2 joining in the conference		
NOTIFY	←	NOTIFY 1		
200 OK NOTIFY	→	200 OK NOTIFY		
		INVITE	→	INVITE 2
		200 OK INVITE	←	200 OK INVITE
		ACK	→	ACK
NOTIFY	←	NOTIFY 2		
200 OK NOTIFY	→	200 OK NOTIFY		
		Conference communication		
		UE#1 wishes to remove UE#2 from the conference		
REFER 2	→	REFER		
2xx REFER	←	2xx REFER		
		Focus removes UE#2 from the conference		
			→	BYE
			←	200 OK BYE
NOTIFY	←	NOTIFY 3		
200 NOTIFY	→	200 NOTIFY		
		Apply post test routine		

TSS	TP	Reference	Selection expression
ConferenceFocus/RemoveFromConf	CONF_N05_002	5.3.2.6.2.2 [2]	PICS 4.5.1/2

Test purpose

The conference owner asks the focus to remove a user that is not participant from the conference.

UE1 (via ISC#1) sends a REFER request to removes a user that is not participant in the conference from the conference. The focus rejects the request.

SIP header values:

REFER 2: Request URI contained the URI of **conference URI**
        Refer-To contains the **URI** of a user that is not conference participant, method=BYE
        Referred-By contains the URI of **UE#1 URI**

Comments:

ISC#1		Focus	ISC#2
		Conference creation	
INVITE	➔	INVITE	
200 OK (INVITE)	⬅	200 OK (INVITE)	
ACK	➔	ACK	
REFER 1	➔		
2xx REFER	⬅		
		UE#2 joining in the conference	
		INVITE ➔	INVITE 2
		200 OK INVITE ⬅	200 OK INVITE
		ACK ➔	ACK
		Conference communication	
		UE#1 wishes to remove non-participant from the conference	
REFER 2	➔	REFER	
4xx	⬅	4xx	
		Apply post test routine	

5.2.1.6 Conference termination

TSS	TP	Reference	Selection expression
ConferenceFocus/TerminateConf	CONF_N06_001	5.3.2.7 [2]	PICS 4.5.1/2

Test purpose

The conference owner releases the entire conference by sending a BYE to the focus.

UE1 (via ISCP#1), the conference owner, sends a BYE request to the focus. The entire conference is released.

SIP header values:

BYE 1:
      Request URI = conference URI

Comments:

ISC#1		Focus	ISC#2
		Conference creation	
INVITE	➔	INVITE	
200 OK (INVITE)	⬅	200 OK (INVITE)	
ACK	➔	ACK	
REFER	➔		
2xx REFER	⬅		
		Focus dials out to invite UE#2	
		INVITE ➔	INVITE 2
		180 Ringing ⬅	180 Ringing
		200 OK INVITE ⬅	200 OK INVITE
		ACK ➔	ACK
		Conference communication	
		UE#1 wishes to finish the entire conference	
BYE 1	➔	BYE	
200 OK BYE	⬅	200 OK BYE	
		Focus removes UE#2 from the conference	
		➔	BYE
		⬅	200 OK BYE
		Apply post test routine	

TSS	TP	Reference	Selection expression
ConferenceFocus/TerminateConf	CONF_N06_002	5.3.2.7 [2]	PICS 4.5.1/2

Test purpose
Conference termination when the conference creator has left the conference.

Ensure that the conference is terminated when the conference creator which has created the conference using the conference factory has left the conference.

SIP header values:
INVITE S1:   Request URI indicating the conference factory URI
200 OK S1:   conference URI and "isfocus" feature parameter included in Contact header field

Comments:

ISC#1		Focus	ISC#2
		Conference creation	
INVITE (S1)	➜	INVITE	
200 OK (INVITE) (S1)	⬅	200 OK (INVITE)	
ACK	➜	ACK	
REFER	➜		
2xx REFER	⬅		
		Focus dials out to invite UE#2	
		INVITE (S2) ➜	INVITE 2
		200 OK INVITE ⬅	200 OK INVITE
		ACK ➜	ACK
		Conference communication	
		Conference creator leaves the conference	
BYE (S1)	➜	BYE (S1)	
200 OK BYE	⬅	200 OK BYE	
		BYE (S2) ➜	BYE
		200 OK BYE ⬅	200 OK BYE

5.2.2   Actions at the UE

TSS	TP	Reference	Selection expression
UserEquipment	CONF_U01_001	4.5.2.1.2 [2]	PICS 4.5.1/1 AND PICS 4.6.1/1 AND NOT PICS 4.6.1/3

Test purpose
The User Equipment has the capability to create a conference. No subscription to the conference event package.

Ensure that the User Equipment to create a conference with a conference factory, sends an initial INVITE request with the Request URI containing a conference factory URI.

SIP header values:
INVITE: Request URI=conference factory URI
200 OK (INVITE):Contact: conference URI;isfocus

Comments:

User Equipment		Test Equipment
INVITE	➜	INVITE
200 OK	⬅	200 OK
ACK	➜	ACK
	Apply post test routine	

TSS	TP	Reference	Selection expression
UserEquipment	CONF_U01_002	4.5.2.1.2 [**2**]	PICS 4.5.1/1 AND PICS 4.6.1/1 AND PICS 4.6.1/3

Test purpose

The User Equipment has the capability to create a conference with subscription to the conference event package.

Ensure that the User Equipment to create a conference with a conference factory, sends an initial INVITE request with the Request URI containing a conference factory URI and on receipt of a 200 OK response, to subscribe to the conference event package sends a SUBSCRIBE request with Request URI indicating the received conference URI.

SIP header values:	
INVITE:	Request URI=conference factory URI
200 OK (INVITE):	Contact: conference URI;isfocus
SUBSCRIBE:	Request URI contained the conference URI
	header contains "conference"
NOTIFY:	Event contains **conference**; Subscription-State contains **active; expires=xxxx**

Comments:

User Equipment		Test Equipment
INVITE	➔	INVITE
200 OK	⬅	200 OK
ACK	➔	ACK
SUBSCRIBE	➔	SUBSCRIBE
200 OK	⬅	200 OK
NOTIFY	⬅	NOTIFY
200 OK NOTIFY	➔	200 OK NOTIFY

Apply post test routine

TSS	TP	Reference	Selection expression
UserEquipment	CONF_U01_003	5.3.1.3.3, 5.3.1.5.3 [**2**]	PICS 4.5.1/1 AND PICS 4.6.1/1 AND PICS 4.6.1/3

Test purpose

Conference creation by Three-way session creation. REFER request to the Focus, Conference notification service is subscribed.

The conference creator is participating in two SIP sessions (S1 and S2) which are put on hold and wants to join together two of these active sessions to a so-called three-way session. The **conference notification service is subscribed**. The conference creator shall perform the following steps:

- Create a conference at the conference factory by sending an INVITE request with the conference factory URI. Receive and store the conference URI in the 200 OK response.
- For each of the active sessions, that are requested to be joined to a three-way session, sends **two REFER requests** with the Request URI indicating the previously received conference URI and the Refer-To header indicating the SIP URI or tel URL of the respective remote user.
- The conference creator releases the sessions 1 and 2 after the receipt of NOTIFY requests indicating that the remote users have successfully joined the three-way session.

SIP header values:	
INVITE:	Request URI indicating the conference factory URI
200 OK:	conference URI and "isfocus" feature parameter indicated in Contact header field
SUBSCRIBE:	Request URI contained the conference URI
	header contains "conference"
NOTIFY 1	Event contains **conference**; Subscription-State contains **active; expires=xxxx**
REFER:	Request URI indicating the conference URI

	Refer-to header contains URI of remote user
NOTIFY 2	Event contains **conference**; Subscription-State contains **active** message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY 3	Event contains **conference**; Subscription-State contains **active** message/sipfrag contains **SIP/2.0 200 OK** application/conference-info+xml contains (S1) connected, dialled-in
NOTIFY 4	Event contains **conference**; Subscription-State contains **active** message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY 5	Event contains **conference**; Subscription-State contains **active** message/sipfrag contains **SIP/2.0 200 OK** application/conference-info+xml contains (S2) connected, dialled-in

Comments:

User Equipment		Test Equipment
		Create session S1
		Set session S1 on hold
		Create session S2
		Set session S2 on hold
INVITE	➔	INVITE
200 OK	⬅	200 OK
ACK	➔	ACK
SUBSCRIBE	➔	SUBSCRIBE
200 OK	⬅	200 OK
NOTIFY	⬅	NOTIFY 1
200 OK NOTIFY	➔	200 OK NOTIFY
REFER (S1)	➔	REFER
2xx REFER	⬅	2xx REFER
NOTIFY	⬅	NOTIFY 2 (S1, 100)
200 OK NOTIFY	➔	200 OK NOTIFY
NOTIFY	⬅	NOTIFY 3 (S1, 200)
200 OK NOTIFY	➔	200 OK NOTIFY
BYE (S1)	➔	BYE
200 OK (BYE)	⬅	200 OK (BYE)
REFER (S2)	➔	REFER
2xx REFER	⬅	2xx REFER
NOTIFY	⬅	NOTIFY 4 (S2, 100)
200 OK NOTIFY	➔	200 OK NOTIFY
NOTIFY	⬅	NOTIFY 5 (S2, 200)
200 OK NOTIFY	➔	200 OK NOTIFY
BYE (S2)	➔	BYE
200 OK (BYE)	⬅	200 OK (BYE)
		Apply post test routine

TSS UserEquipment	TP CONF_U01_004	Reference 5.3.1.3.3, 5.3.1.5.3 [2]	Selection expression PICS 4.5.1/1 AND NOT PICS 4.6.1/3

Test purpose

Conference creation by Three-way session creation. REFER request to the Focus, Conference notification service not subscribed.

The conference creator is participating in two SIP sessions (S1 and S2) which are put on hold and wants to join together two of these active sessions to a so-called three-way session. The **conference notification service is not subscribed**. The conference creator shall perform the following steps:

- Create a conference at the conference factory by sending an INVITE request with the conference factory URI. Receive and store the conference URI in the 200 OK response.
- For each of the active sessions, that are requested to be joined to a three-way session, sends **two REFER requests** with the Request URI indicating the previously received conference URI and the Refer-To header indicating the SIP URI or tel URL of the respective remote user.

SIP header values:
INVITE: Request URI indicating the conference factory URI
200 OK: conference URI and "isfocus" feature parameter indicated in Contact header field

REFER: Request URI indicating the conference URI
            Refer-to header contains the URI of remote user

Comments:

User Equipment		Test Equipment
	Create session S1	
	Set session S1 on hold	
	Create session S2	
	Set session S2 on hold	
INVITE	➔	INVITE
200 OK	⬅	200 OK
ACK	➔	ACK
REFER (S1)	➔	REFER
2xx REFER	⬅	2xx REFER
REFER (S2)	➔	REFER
2xx REFER	⬅	2xx REFER
	Apply post test routine	

TSS UserEquipment	**TP** CONF_U01_005	**Reference** 5.3.1.3.3, 5.3.1.5.2 [**2**]	**Selection expression** PICS 4.5.1/1 AND PICS 4.6.1/1 AND PICS 4.6.1/3

Test purpose

Conference creation by Three-way session creation. REFER request to the user, Conference notification service is subscribed.

The conference creator is participating in two SIP sessions (S1 and S2) which are put on hold and wants to join together two of these active sessions to a so-called three-way session. The **conference notification service is subscribed**. The conference creator shall perform the following steps:

- Create a conference at the conference factory by sending an INVITE request with the conference factory URI. Receive and store the conference URI in the 200 OK response.
- For each of the active sessions, that are requested to be joined to a three-way session, sends **two REFER requests** with the Request URI indicating SIP URI or tel URL of the respective remote user and the Refer-To header indicating the previously received conference URI.
- The conference creator releases the sessions 1 and 2 after the receipt of NOTIFY requests indicating that the remote users have successfully joined the three-way session.

SIP header values:

INVITE: Request URI indicating the conference factory URI
200 OK: conference URI and "isfocus" feature parameter indicated in Contact header field

SUBSCRIBE: Request URI contained the conference URI
                  header contains "conference"
NOTIFY 1:   Event contains **conference**; Subscription-State contains **active; expires=xxxx**

REFER 1:   Request URI indicating the remote user of S1
                  Refer-to header contains the conference URI

NOTIFY 2   Event contains **conference**; Subscription-State contains **active**
                  message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY 3   Event contains **conference**; Subscription-State contains **active**
                  message/sipfrag contains **SIP/2.0 200 OK**
                  application/conference-info+xml contains (S1) connected, dialled-in

REFER 2:   Request URI indicating the remote user of S2
                  Refer-to header contains the conference URI

NOTIFY 4   Event contains **conference**; Subscription-State contains **active**
                  message/sipfrag contains **SIP/2.0 100 Trying**
NOTIFY 5   Event contains **conference**; Subscription-State contains **active**
                  message/sipfrag contains **SIP/2.0 200 OK**
                  application/conference-info+xml contains (S2) connected, dialled-in

Comments:		
User Equipment	**Test Equipment**	
	Create session S1	
	Set session S1 on hold	
	Create session S2	
	Set session S2 on hold	
INVITE	➔	INVITE
200 OK	⬅	200 OK
ACK	➔	ACK
SUBSCRIBE	➔	SUBSCRIBE
NOTIFY	⬅	NOTIFY 1
200 OK NOTIFY	➔	200 OK NOTIFY
REFER (S1)	➔	REFER
2xx REFER	⬅	2xx REFER
NOTIFY	⬅	NOTIFY 2 (S1, 100)
200 OK NOTIFY	➔	200 OK NOTIFY
NOTIFY	⬅	NOTIFY 3 (S1, 200)
200 OK NOTIFY	➔	200 OK NOTIFY
BYE	➔	BYE (S1)
200 OK (BYE)	⬅	200 OK (BYE)
REFER (S2)	➔	REFER
2xx REFER	⬅	2xx REFER
NOTIFY	⬅	NOTIFY 4 (S2, 100)
200 OK NOTIFY	➔	200 OK NOTIFY
NOTIFY	⬅	NOTIFY 5 (S2, 200)
200 OK NOTIFY	➔	200 OK NOTIFY
BYE	➔	BYE (S2)
200 OK (BYE)	⬅	200 OK (BYE)
	Apply post test routine	

TSS UserEquipment	TP CONF_U01_006	Reference 5.3.1.3.3, 5.3.1.5.2 [2]	Selection expression PICS 4.5.1/1 AND PICS 4.6.1/1 AND NOT PICS 4.6.1/3

Test purpose

Conference creation by Three-way session creation. REFER request to the user, Conference notification service is not subscribed.

The conference creator is participating in two SIP sessions (S1 and S2) which are put on hold and wants to join together two of these active sessions to a so-called three-way session. The **conference notification service is not subscribed**. The conference creator shall perform the following steps:

- Create a conference at the conference factory by sending an INVITE request with the conference factory URI. Receive and store the conference URI in the 200 OK response.
- For each of the active sessions, that are requested to be joined to a three-way session, sends **two REFER requests** with the Request URI indicating SIP URI or tel URL of the respective remote user and the Refer-To header indicating the previously received conference URI.

SIP header values:

INVITE: Request URI indicating the conference factory URI
200 OK: conference URI and "isfocus" feature parameter indicated in Contact header field

REFER 1: Request URI indicating the remote user of S1
        Refer-to header contains the conference URI

REFER 2: Request URI indicating the remote user of S2
        Refer-to header contains the conference URI

Comments:

User Equipment		Test Equipment
		Create session S1
		Set session S1 on hold
		Create session S2
		Set session S2 on hold
INVITE	➜	INVITE
200 OK	⬅	200 OK
ACK	➜	ACK
REFER (S1)	➜	REFER
2xx REFER	⬅	2xx REFER
REFER (S2)	➜	REFER
202 Accepted	⬅	202 Accepted
	Apply post test routine	

TSS UserEquipment	TP CONF_U01_007	Reference 5.3.1.4 [2]	Selection expression PICS 4.5.1/1 AND PICS 4.6.1/1

Test purpose

The User Equipment has the capability join a conference.

Ensure that the User Equipment on receipt of a REFER request that contains a Refer-To header indicating a conference URI including the "method" parameter set to INVITE and contains a Referred-By header, sends an INVITE request to the conference URI including the received Referred-By header.

SIP header values:
REFER: Refer-To=conference URI; method=INVITE
        Referred-By=Remote User Equipment URI
INVITE: Request URI indicating the received conference URI
        Referred-By=Remote User Equipment URI

Comments:

User Equipment		Test Equipment
REFER	⬅	REFER
202 Accepted	➜	202 Accepted
INVITE	➜	INVITE
	Apply post test routine	

TSS	TP	Reference	Selection expression
UserEquipment	CONF_U01_008	5.3.1.5.2 [**2**]	PICS 4.5.1/1 AND PICS 4.6.1/1

Test purpose
The User Equipment has the capability to invite a participant to the conference. REFER request to the participant.
Ensure that the User Equipment is able to invite a participant to the established conference. The User Equipment sends a REFER request to the participant and the Refer-To header URI is set to the conference URI.

SIP header values:
REFER: Request URI=TestEquipment (User = PIXIT) Refer-To=conference URI

Comments:

User Equipment   **Test Equipment**
                              Create Conference

REFER   ➔   REFER
2xx REFER   ⬅   2xx REFER

                          Apply post test routine

TSS	TP	Reference	Selection expression
UserEquipment	CONF_U01_009	5.3.1.5.3 [**2**]	PICS 4.5.1/1 AND PICS 4.6.1/1

Test purpose
The User Equipment has the capability to invite a participant to the conference. REFER request to the Focus.
Ensure that the User Equipment is able to invite a participant to the established conference. The User Equipment sends a REFER request to the conference AS and the Refer-To header URI is set to the inviting user's URI.

SIP header values:
REFER: Request URI=conference URI Refer-To=Participant URI (PIXIT); method=INVITE

Comments:

User Equipment   **Test Equipment**
                              Create Conference

REFER   ➔   REFER
2xx REFER   ⬅   2xx REFER

                          Apply post test routine

TSS	TP	Reference	Selection expression
UserEquipment	CONF_U01_010	5.3.1.5.4 [**2**]	PICS 4.5.1/1 AND PICS 4.6.1/1 AND PICS 4.6.1/2

Test purpose
The User Equipment has the capability to invite a participant to the conference. Resource list is used.
Ensure that the User Equipment is able to send a resource list to the conference AS to invite participant(s) to a conference.

SIP header values:
INVITE   Request URI indicating the Conference Factory URI

```
Content-Type: application/resource-lists+xml
Content-Disposition: recipient-list

<?xml version="1.0" encoding="UTF-8"?>
<resource-lists xmlns="urn:ietf:params:xml:ns:resource-lists" xmlns:cp="urn:ietf:params:xml:ns:copyControl">
    <list>
        <entry uri="S1 URI"
            cp:copyControl="to"/>
    </list>
</resource-lists>
```

Comments:		
User Equipment		**Test Equipment**
INVITE	←	INVITE (S1)
200 OK (INVITE)	→	200 OK (INVITE)
ACK	←	ACK
	Apply post test routine	

5.3 Interaction with other supplementary services

5.3.1 Terminating Identification Restriction (TIR)

TSS Interaction/TIR	TP CONF_N08_001	Reference 4.6.3 [**1**]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/7

Test purpose

Remote user requests TIR, no identity information in the conference notification info send in the NOTIFY request to the conference creator.

Ensure the no identity is sent to the conference creator if a Privacy header was received and the privacy value was set to "id" in the 200 OK to the INVITE from the conference focus to invite the participant to the conference.

SIP header values:

200 OK INVITE 2: Privacy: id
NOTIFY 2:   Event contains **conference**; Subscription-State contains **active**
        application/conference-info+xml:
           <conference-info>
               entity=conference URI, state="full", version="x"
               <conference-state>
                   <user-count>2</user-count> if present
                   <active>true</active> if present
               <users>
                   <user entity=ISC#1 URI state="full"
                      <endpoint entity=endpoint ISC#1 URI
                         <status>connected</status>
                         <joining-method>dialled-in</ joining-method>
                         <media id="1"
                            <status>sendrecv</status>
            [No identity information of UE#2 or Element is not present]

Comments:					
ISC#1		**Focus**		**ISC#2**	
		Conference creation			
INVITE	→	INVITE			
200 OK (INVITE)	←	200 OK (INVITE)			
ACK	→	ACK			
SUBSCRIBE	→	SUBSCRIBE			
200 OK (SUBSCRIBE)	←	200 OK (SUBSCRIBE)			
		UE1#1 invites UE#2 via the conference focus			
REFER	→				
200 OK (REFER)	←				
		Focus invites UE#2 to the conference			
NOTIFY	←	NOTIFY 1			
200 OK NOTIFY	→	200 OK NOTIFY			
		INVITE	→	INVITE 2	
		200 OK INVITE	←	200 OK INVITE 2	
		ACK	→	ACK	
NOTIFY	←	NOTIFY 2			
200 OK NOTIFY	→	200 OK NOTIFY			
		Apply post test routine			

5.3.2   Originating Identification Restriction (OIR)

TSS Interaction/OIR	TP CONF_N09_001	Reference 4.6.5 [1]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose

Conference creator subscribes to OIR in permanent mode. The There is no identity information of the creator included in the conference notification sent to the conference participants.

Ensure that the conference notification sent in the NOTIFY request to the participant after it has joined the conference if the conference creator has subscribed to the OIR service.

SIP header values:

SUBSCRIBE: Request URI contained the conference URI, Event contains "conference"
          Event header contains "conference"
NOTIFY 3:   Event contains **conference**; Subscription-State contains **active; expires=xxxx**
          application/conference-info+xml:
             <conference-info>
                entity=conference URI state="full" version="x"
              <conference-state>
                <user-count>2</user-count> if present
                <active>true</active> if present
              <users>
                [No identity information of UE#1 or Element is not present]
                <user entity=ISC#2 URI state="full"
                   <endpoint entity=endpoint ISC#2 URI
                     <status>connected</status>
                     <joining-method>dialled-in</ joining-method>
                     <media id="1"
                        <status>sendrecv</status>

Comments:

```
ISC#1                                    Focus                    ISC#2
                               Conference creation
INVITE                    ➔      INVITE
200 OK (INVITE)          ⬅      200 OK (INVITE)
ACK                      ➔      ACK

                    UE1#1 invites UE#2 via the conference focus
REFER                    ➔
200 OK (REFER)           ⬅
                         Focus invites UE#2 to the conference
NOTIFY                   ⬅      NOTIFY 1
200 OK NOTIFY            ➔      200 OK NOTIFY
                                              INVITE    ➔   INVITE 2
                                         200 OK INVITE  ⬅   200 OK INVITE
                                                 ACK    ➔   ACK
NOTIFY                   ⬅      NOTIFY 2
200 OK NOTIFY            ➔      200 OK NOTIFY
                                                        ⬅   SUBSCRIBE
                                                        ➔   200 OK (SUBSCRIBE)
                                             NOTIFY 3   ➔   NOTIFY
                                          200 OK NOTIFY ⬅   200 OK NOTIFY
                               Apply post test routine
```

TSS	TP	Reference	Selection expression
Interaction/OIR	CONF_N09_002	4.6.5 [1]	PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
Conference creator subscribes to OIR in temporary mode. Referred-By is not sent in the INVITE request if a Privacy header set to value "user" was received in the REFER.
Ensure that the Referred-By header received in the REFER request to the conference focus is not sent in the INVITE request to the participant to be invited to the conference if the REFER request contained Referred-By header and a Privacy header set to "user".

SIP header values:
REFER 1: Referred-By=UE#1
Privacy: user
INVITE 1: Request URI=UE#2
no Referred-By included

Comments:

```
ISC#1                                Focus                ISC#2
                              Conference creation
INVITE                     →    INVITE
200 OK (INVITE)            ←    200 OK (INVITE)
ACK                        →    ACK
                   UE1#1 invites UE#2 via the conference focus
REFER 1                    →    REFER
202 Accepted              ←    202 Accepted

                            Focus dials out to invite UE#2
                                          INVITE 1   →   INVITE
NOTIFY                    ←    NOTIFY 1
200 OK NOTIFY            →    200 OK NOTIFY
                                          200 OK INVITE  ←  200 OK INVITE
                                          ACK        →   ACK
NOTIFY                    ←    NOTIFY 2
200 OK NOTIFY            →    200 OK NOTIFY
                              Apply post test routine
```

TSS Interaction/OIR	TP CONF_N09_003	Reference 4.6.5 [1]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6
Test purpose *Conference creator subscribes to OIR in temporary mode. Referred-By is not inserted into the INVITE request if Privacy value "user" was received in the REFER.* Ensure that if the Referred-By header is not received in the REFER request to the conference focus, it is not inserted into the INVITE request sent to the participant to be invited to the conference if the REFER request contained a Privacy header set to "user".			

SIP header values:
REFER 1: no Referred-By present
       Privacy: user
INVITE 1: Request URI=UE#2
       no Referred-By inserted			

Comments:
ISC#1   Focus   ISC#2
                      Conference creation
INVITE   ➔   INVITE
200 OK (INVITE)   ⬅   200 OK (INVITE)
ACK   ➔   ACK
     UE1#1 invites UE#2 via the conference focus
REFER 1   ➔   REFER
2xx REFER   ⬅   2xx REFER
 	
          Focus dials out to invite UE#2
                   INVITE 1   ➔   INVITE
NOTIFY   ⬅   NOTIFY 1
200 OK NOTIFY   ➔   200 OK NOTIFY
                 200 OK INVITE   ⬅   200 OK INVITE
                     ACK   ➔   ACK
NOTIFY   ⬅   NOTIFY 2
200 OK NOTIFY   ➔   200 OK NOTIFY
                Apply post test routine			

TSS Interaction/OIR	TP CONF_N09_004	Reference 4.6.5 [1]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/6

Test purpose
Conference creator subscribes to OIR in temporary mode. Referred-By is not inserted into the INVITE request if Privacy value "header" was received in the REFER.

Ensure that if the Referred-By header is not received in the REFER request to the conference focus, it is not inserted into the INVITE request sent to the participant to be invited to the conference if the REFER request contained a Privacy header set to "header".

SIP header values:
REFER 1: no Referred-By present
        Privacy: header
INVITE 1: Request URI=UE#2
        no Referred-By inserted

Comments:
```
ISC#1                                 Focus                    ISC#2
                              Conference creation
INVITE                    ➔       INVITE
200 OK (INVITE)           ⬅       200 OK (INVITE)
ACK                       ➔       ACK
                      UE1#1 invites UE#2 via the conference focus
REFER 1                   ➔       REFER
2xx REFER                 ⬅       2xx REFER

                          Focus dials out to invite UE#2
                                            INVITE 1  ➔   INVITE
NOTIFY                    ⬅       NOTIFY 1
200 OK NOTIFY             ➔       200 OK NOTIFY
                                       200 OK INVITE  ⬅   200 OK INVITE
                                                ACK   ➔   ACK
NOTIFY                    ⬅       NOTIFY 2
200 OK NOTIFY             ➔       200 OK NOTIFY
                              Apply post test routine
```

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

TSS Interaction/ACR-CB	TP CONF_N10_001	Reference 4.6.9 [1]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/8

Test purpose
Conference creator subscribes to ACR/CB and has Outgoing Call Barring activated for UE2. Conference invitation for UE2 via REFER is rejected.

Ensure that the conference AS rejects the REFER request targeted at a participant (UE2) that is barred by the conference creator's Outgoing Communication Barring rules.

SIP header values:
REFER: Request URI contained the **conference URI**
        Refer-To contains the URI of **UE#2**, method=invite
        Referred-By contains SIP URI of **UE#1**

Comments:
```
ISC#1                                 Focus                    ISC#2
                              Conference creation
INVITE                    ➔       INVITE
200 OK (INVITE)           ⬅       200 OK (INVITE)
ACK                       ➔       ACK
              UE1#1 invites outgoing call barred UE#2 via the conference focus
REFER                     ➔       REFER
4xx                       ⬅       4xx
                              Apply post test routine
```

TSS Interaction/ACR-CB	TP CONF_N10_002	Reference 4.6.9 [1]	Selection expression PICS 4.5.1/2 AND PICS 4.7.1/8

Test purpose
Conference creator subscribes to ACR/CB and has Outgoing Call Barring activated for UE2. Conference invitation for UE2 via the uri-list is rejected.

Ensure that the focus AS removes the URI of UE2 that is barred by the conference creator's Outgoing Communication Barring rules from the list of URIs in the "recipient-list" body of INVITE request. UE2 is not invited to the conference.

SIP header values:
INVITE (S1)   Request URI indicating Conference Factory
Content-Type: application/resource-lists+xml
Content-Disposition: recipient-list

```
<?xml version="1.0" encoding="UTF-8"?>
<resource-lists xmlns="urn:ietf:params:xml:ns:resource-lists" xmlns:cp="urn:ietf:params:xml:ns:copyControl">
    <list>
        <entry uri="UE#2" cp:copyControl="to"/>
        <entry uri="UE#3" cp:copyControl="to"/>
    </list>
</resource-lists>
```

Comments:

ISC#1		Focus	ISC#2		ISC#3
INVITE (S1)	➔	INVITE			
200 OK (INVITE)	⬅	200 OK (INVITE)			
ACK	➔	ACK			
			INVITE (S2)	➔	INVITE
			200 OK (INVITE)	⬅	200 OK (INVITE)
			ACK	➔	ACK

Apply post test routine

Annex A (informative):
Bibliography

ETSI TS 124 628: "Digital cellular telecommunications system (Phase 2+); 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)".

History

Document history		
V2.1.1	July 2009	Publication
V3.1.1	July 2011	Publication
V3.2.1	October 2015	Publication
V4.1.1	December 2017	Publication