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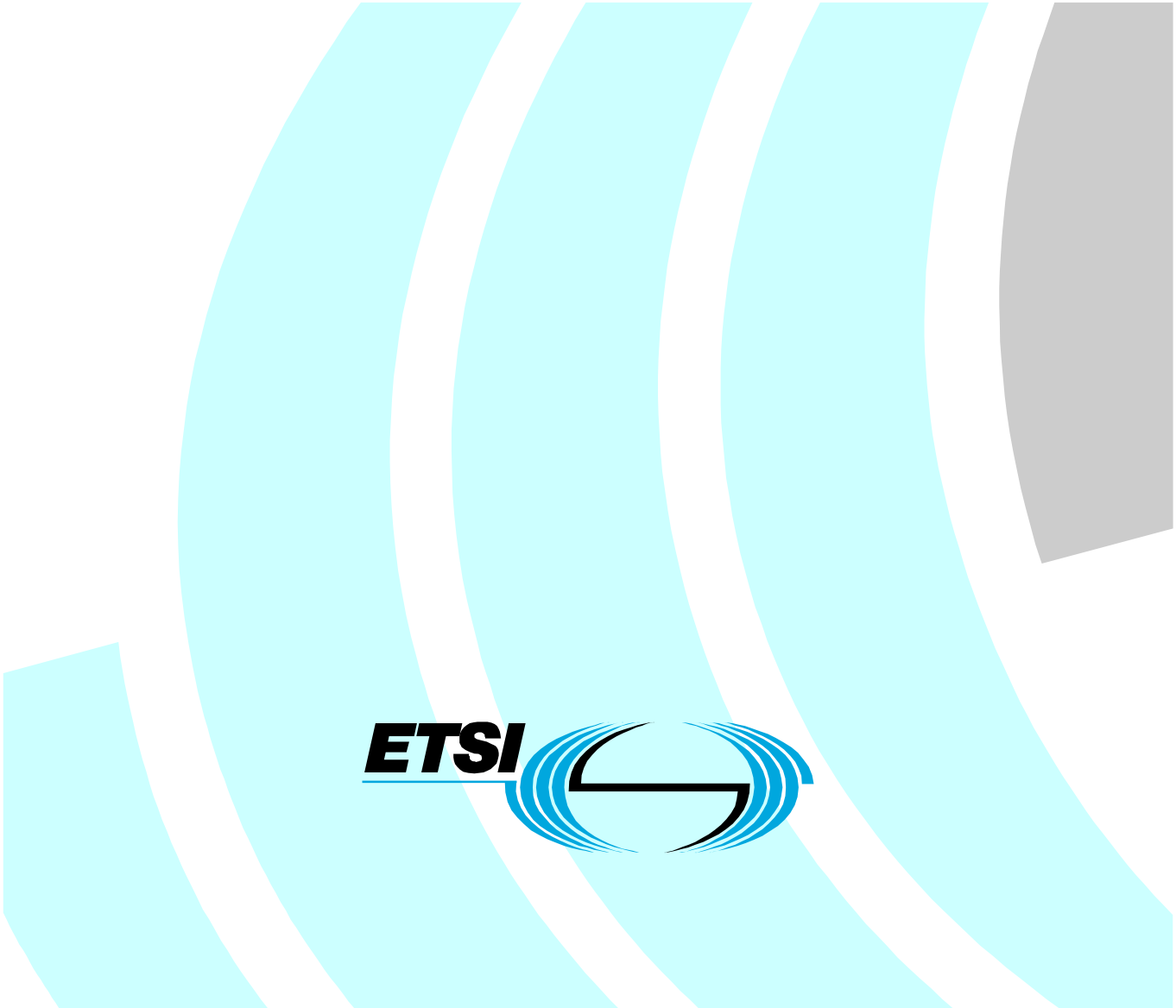
Technical Specification

Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Communication HOLD (CH); Part 2: Test Suite Structure and Test Purposes (TSS&TP)



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Contents

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Foreword

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

The present document is part 2 of a multi-part deliverable covering Communication Hold (CH) as identified below:

Part 1: "PICS";

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

The present version updates the references to the basic call specifications.

NOTE: Some new parts will be developed in the future.

1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP of the Communication Hold service, based on stage one and two of the ISDN HOLD supplementary services.

A further part of the present document specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on the present document.

Within the TISPAN NGN Release 1 Next Generation Network (NGN) the stage 3 description is specified using the IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP).

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

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

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

[2] ETSI ES 283 003: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3 [3GPP TS 24.229 (Release 7), modified]".

[3] IETF RFC 3515: "The Session Initiation Protocol (SIP) Refer Method".

[4] ETSI TS 183 010: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Signalling Control Protocol; Communication HOLD (HOLD); PSTN/ISDN simulation services".

[5] ETSI ES 283 027: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Endorsement of the SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks [3GPP TS 29.163 (Release 7), modified]".

[6] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[7] IETF RFC 2806: "URLs for Telephone Calls".

[8] IETF RFC 2396: "Uniform Resource Identifiers (URI): Generic Syntax".

[9] ITU-T Recommendation Q.9: "Vocabulary of switching and signalling terms".

[10] ETSI TS 183 010: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Signalling Control Protocol; Communication HOLD (HOLD); PSTN/ISDN simulation services".

[11] ETSI EN 300 092-1: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[12] ETSI TS 186 006-1: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR); Part 1: PICS".

[13] ETSI TS 186 007-1: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Communication HOLD (CH); Part 1: PICS".

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

[15] ETSI EN 300 356 (series): "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

address identity: See Recommendation E.164 [6] or/and RFC 2806 [7].

call: See ITU-T Recommendation Q.9 [9], definition 2201.

call state: state as defined in clause 2.1 of the present document, for either the user side or network side as appropriate

NOTE: A call state may exist for each call reference value (and at the network side for each additional responding CEI in the incoming call states).

communication: Refer to TS 181 002 [1].

identity information: includes all the information (RFC 2806 [7]/RFC 2396 [8]/E.164 [6]) identfying a user, including trusted (network generated) and/or untrusted (user generated) addresses

supplementary service: a service that modifies or supplements a basic Telecommunication service

trusted identity: network generated user address information

untrusted identity: user generated user address information

voice session: existing voice connection between two terminal equipments

EXAMPLE: Via RTP.

3.2 Abbreviations

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

CN	Core Network
CS	Circuit Switched
HOLD	Communication session Hold
IM	IP Multimedia
IP	Internet Protocol
ISDN	Integrated Service Data Network
NGN	Next Generation Network
PSTN	Public Switch Telephone Network
SIP	Session Initiation Protocol
TP	Test Purpose
TSS	Test Suite Structure
UE	User Equipment

4 Test Suite Structure (TSS)

ServedUser			
	WithoutAnnounc	WithUPDATE	**CH_U01_xxx**
		WithoutUPDATE	**CH_U02_xxx**
	WithAnnounc	WithUPDATE	**CH_U03_xxx**
		WithoutUPDATE	**CH_U04_xxx**
	RingingState		**CH_U05_xxx**
RemoteUser			
	WithUPDATE		**CH_U06_xxx**
	WithoutUPDATE		**CH_U07_xxx**

Figure 1: Test suite structure

5 Test Purposes (TP)

5.1 Introduction

For each test requirement a TP is defined.

5.1.1 TP naming convention

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

Table 1: TP identifier naming convention scheme

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

5.1.2 Test strategy

As the base standard TS 183 010 [10] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification TS 186 007-1 [13].

5.2 User TPs for HOLD

All PICS items referred to in this clause are as specified in TS 186 007-1 [13] unless indicated otherwise by another numbered reference.

5.2.1 Served user

5.2.1.1 Communication without announcements

5.2.1.1.1 Communication Hold with support for UPDATE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_001	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to sendrecv.
Ensure that the IUT requesting the hold session stops sending media and sends an UPDATE to hold the session. Hold is done containing the SDP with the attribute 'a=' sendonly. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:
- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(**sendonly**)	→		→	UPDATE(sendonly)
200 OK UPDATE (**recvonly**)	←		←	200 OK UPDATE (recvonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_002	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to recvonly.
Ensure that the IUT requesting the hold session stops sending media and sends an UPDATE to hold the session. Hold is done containing the SDP with the attribute 'a=' inactive. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:
- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'recvonly'
- Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(sendonly)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(**inactive**)	→		→	UPDATE(inactive)
200 OK UPDATE (**inactive**)	←		←	200 OK UPDATE (inactive)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_003	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to sendonly.
Ensure that the IUT is requesting to **resume the session** with user B the UE-A starts sending media and sends an UPDATE to resume the session with the attribute 'a=' **sendrecv** in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' **sendrecv** in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted

Precondition:
- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly'
- Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(**sendonly**)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (recvonly)
UPDATE(**sendrecv**)	→		→	UPDATE(sendrecv)
200 OK UPDATE (**sendrecv**)	←		←	200 OK UPDATE (sendrecv)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_004	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to inactive.
Ensure that the IUT is requesting to resume the session with user B the UE-A starts sending media and sends an UPDATE to resume the session with the attribute 'a=' **recvonly** in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' **sendonly** in the SDP.

Precondition:
- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'inactive'
- Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(sendonly)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(**inactive**)	→		→	UPDATE(inactive)
200 OK UPDATE (**inactive**)	←		←	200 OK UPDATE (inactive)
UPDATE(**recvonly**)	→		→	UPDATE(recvonly)
200 OK UPDATE (**sendonly**)	←		←	200 OK UPDATE (sendonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_005	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:

Session hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to sendrecv.

Ensure that the IUT requesting the hold session stops sending media and sends an UPDATE to hold the session. Hold is done containing the SDP with the attribute 'a=' sendonly. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:

- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(**sendonly**)	→		→	UPDATE(sendonly)
200 OK UPDATE (**recvonly**)	←		←	200 OK UPDATE (recvonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_006	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:

Session hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to recvonly.

Ensure that the IUT requesting the hold session stops sending media and sends an UPDATE to hold the session. Hold is done containing the SDP with the attribute 'a=' inactive. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:

- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'recvonly'
- Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(sendonly)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(**inactive**)	→		→	UPDATE(inactive)
200 OK UPDATE (**inactive**)	←		←	200 OK UPDATE (inactive)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_007	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to sendonly.
Ensure that the IUT is requesting to resume the session with user B the UE-A starts sending media and sends an UPDATE to resume the session with the attribute 'a=' sendrecv in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' sendrecv in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly'
- Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(**sendonly**)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (recvonly)
UPDATE(**sendrecv**)	→		→	UPDATE(sendrecv)
200 OK UPDATE (sendrecv)	←		←	200 OK UPDATE (sendrecv)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithUPDATE	CH_U01_008	4.5.2.1	PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to inactive.
Ensure that the IUT is requesting to resume the session with user B the UE-A starts sending media and sends an UPDATE to resume the session with the attribute 'a=' recvonly in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' sendonly in the SDP.

Precondition:
- A session was established between user A and user B according to the 'basic Call' procedures
- The media stream was previously set to 'inactive'
- Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(sendonly)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(**inactive**)	→		→	UPDATE(inactive)
200 OK UPDATE (inactive)	←		←	200 OK UPDATE (inactive)
UPDATE(**recvonly**)	→		→	UPDATE(recvonly)
200 OK UPDATE (sendonly)	←		←	200 OK UPDATE (sendonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

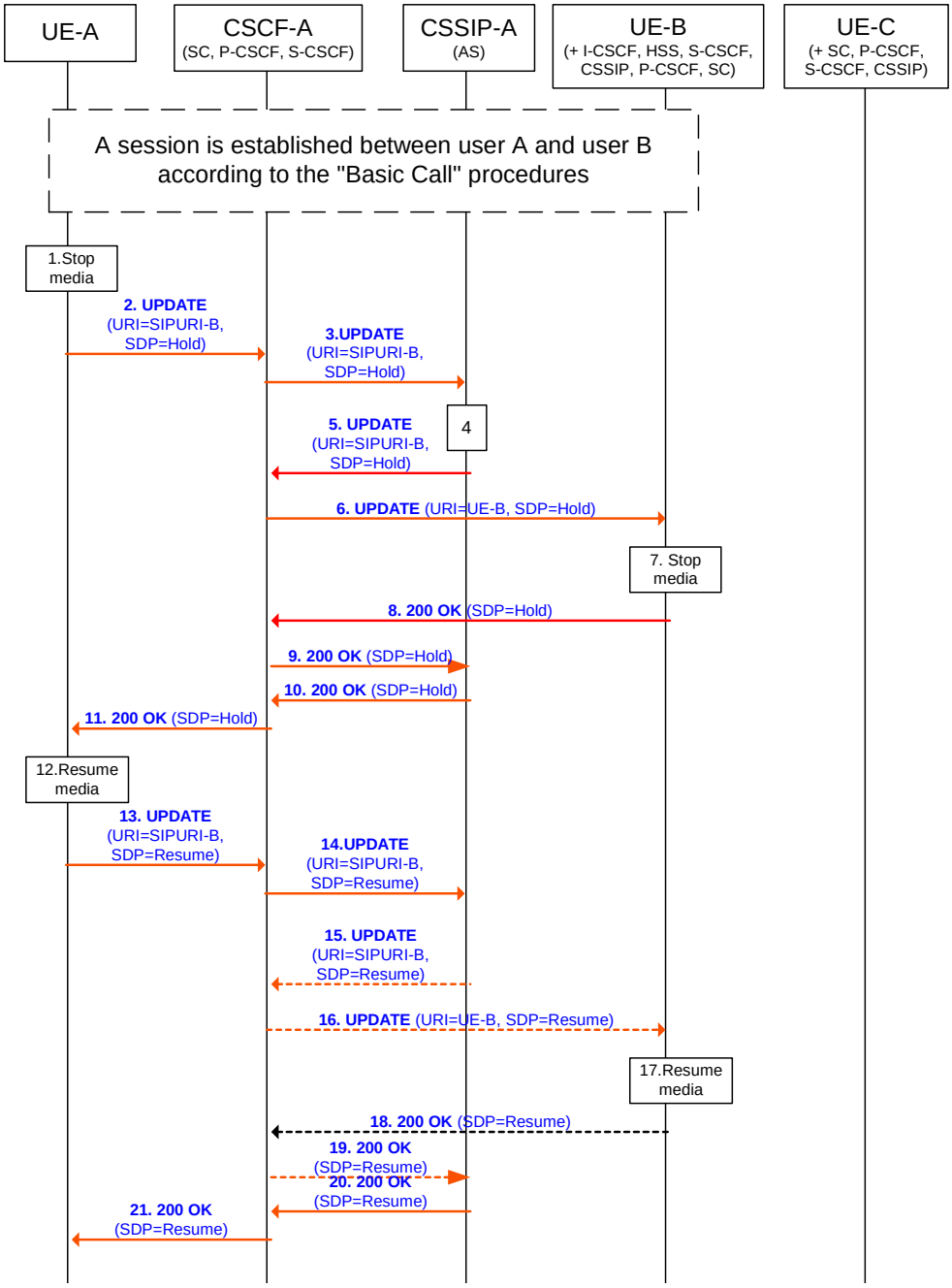

Figure 2: CH_U01_008

5.2.1.1.2 Communication Hold without support for UPDATE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_001		

Test purpose:
UPDAT method is not supported, the reINVITE is used
Ensure that in the case that UPDATE is not supported in one of the endpoints, and therefore does not have UPDATE in the allow header in the initial INVITE, Communication Hold should be done using a Re-INVITE.
The UPDATE is not contained in Allow header in the 200 OK INVITE

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(recvonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_002	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. INVITE method is used. Individual media streams are affected. The media stream was previously set to sendrecv.
Ensure that the IUT requesting the hold session stops sending media and sends an INVITE to hold the session. Hold is done containing the SDP with the attribute 'a=' sendonly. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendrecv'
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(**sendonly**)	→		→	INVITE(sendonly)
200 OK INVITE (**recvonly**)	←		←	200 OK INVITE(recvonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_003	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. INVITE method is used. Individual media streams are affected. The media stream was previously set to recvonly.
Ensure that the IUT requesting the hold session stops sending media and sends an INVITE to hold the session. Hold is done containing the SDP with the attribute 'a=' inactive. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'recvonly'
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE (sendonly)	←		←	INVITE(sendonly)
200 OK INVITE (**recvonly**)	→		→	200 OK INVITE(recvonly)
INVITE (**inactive**)	→		→	INVITE(inactive)
200 OK INVITE (**inactive**)	←		←	200 OK INVITE(inactive)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_004	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. INVITE method is used. Individual media streams are affected. The media stream was previously set to sendonly.
Ensure that the IUT is requesting to resume the session with user B the UE-A starts sending media and sends an INVITE to resume the session with the attribute 'a=' sendrecv in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' sendrecv in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendonly'
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE (**sendonly**)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(recvonly)
INVITE (**sendrecv**)	→		→	INVITE (sendrecv)
200 OK INVITE (**sendrecv**)	←		←	200 OK INVITE (sendrecv)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_005	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. INVITE method is used. Individual media streams are affected. The media stream was previously set to inactive.
Ensure that the IUT is requesting to resume the session with user B the UE-A starts sending media and sends an INVITE to resume the session with the attribute 'a=' recvonly in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' sendonly in the SDP.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'inactive'
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	←		←	INVITE(sendonly)
200 OK INVITE (recvonly)	→		→	200 OK INVITE(recvonly)
ACK	←		←	ACK
INVITE(**inactive**)	→		→	INVITE(inactive)
200 OK INVITE (**inactive**)	←		←	200 OK INVITE(inactive)
INVITE (**recvonly**)	→		→	INVITE (recvonly)
200 OK INVITE (**sendonly**)	←		←	200 OK INVITE (sendonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_006	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. INVITE method is used. All the media streams are affected. The media stream was previously set to sendrecv.
Ensure that the IUT requesting the hold session stops sending media and sends an INVITE to hold the session. Hold is done containing the SDP with the attribute 'a=' sendonly. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendrecv'
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(**sendonly**)	→		→	INVITE(sendonly)
200 OK INVITE (**recvonly**)	←		←	200 OK INVITE(recvonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_007	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. INVITE method is used. All the media streams are affected. The media stream was previously set to recvonly.
Ensure that the IUT requesting the hold session stops sending media and sends an INVITE to hold the session. Hold is done containing the SDP with the attribute 'a=' inactive. The IUT after requesting the hold session *receives* 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'recvonly'
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE (sendonly)	←		←	INVITE(sendonly)
200 OK INVITE (**recvonly**)	→		→	200 OK INVITE(recvonly)
INVITE(**inactive**)	→		→	INVITE(inactive)
200 OK INVITE (**inactive**)	←		←	200 OK INVITE(inactive)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_008	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:
Session hold. INVITE method is used. All the media streams are affected. The media stream was previously set to sendonly.
Ensure that the IUT is requesting to resume the session with user B the UE-A starts sending media and sends an INVITE to resume the session with the attribute 'a=' sendrecv in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' sendrecv in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendonly'
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE (**sendonly**)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(recvonly)
INVITE (**sendrecv**)	→		→	INVITE (sendrecv)
200 OK INVITE (**sendrecv**)	←		←	200 OK INVITE (sendrecv)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutAnnounc/WithoutUPDATE	CH_U02_009	4.5.2.1	NOT PICS 1/2 AND NOT PICS 1/3

Test purpose:

Session hold. INVITE method is used. All the media streams are affected. The media stream was previously set to inactive.

Ensure that the IUT is requesting to resume the session with user B the UE-A starts sending media and sends an INVITE to resume the session with the attribute 'a=' recvonly in the SDP. The IUT after requesting the hold session *receives* 200 OK final response and optionally the attribute 'a=' sendonly in the SDP.

Precondition:

A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'inactive'
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	←		←	INVITE(sendonly)
200 OK INVITE (recvonly)	→		→	200 OK INVITE(recvonly)
INVITE(**inactive**)	→		→	INVITE(inactive)
200 OK INVITE (**inactive**)	←		←	200 OK INVITE(inactive)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

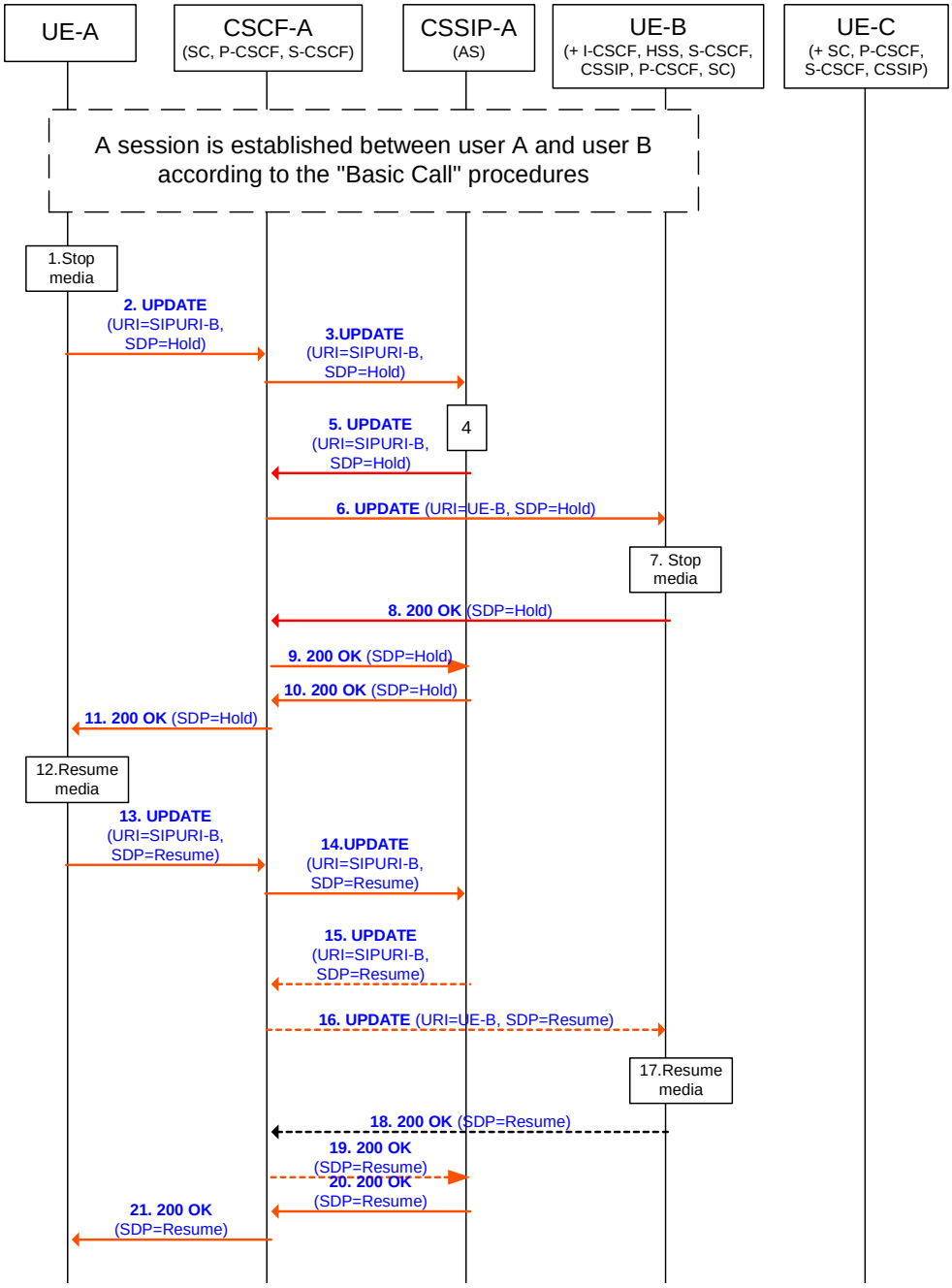

Figure 3: CH_U02_009

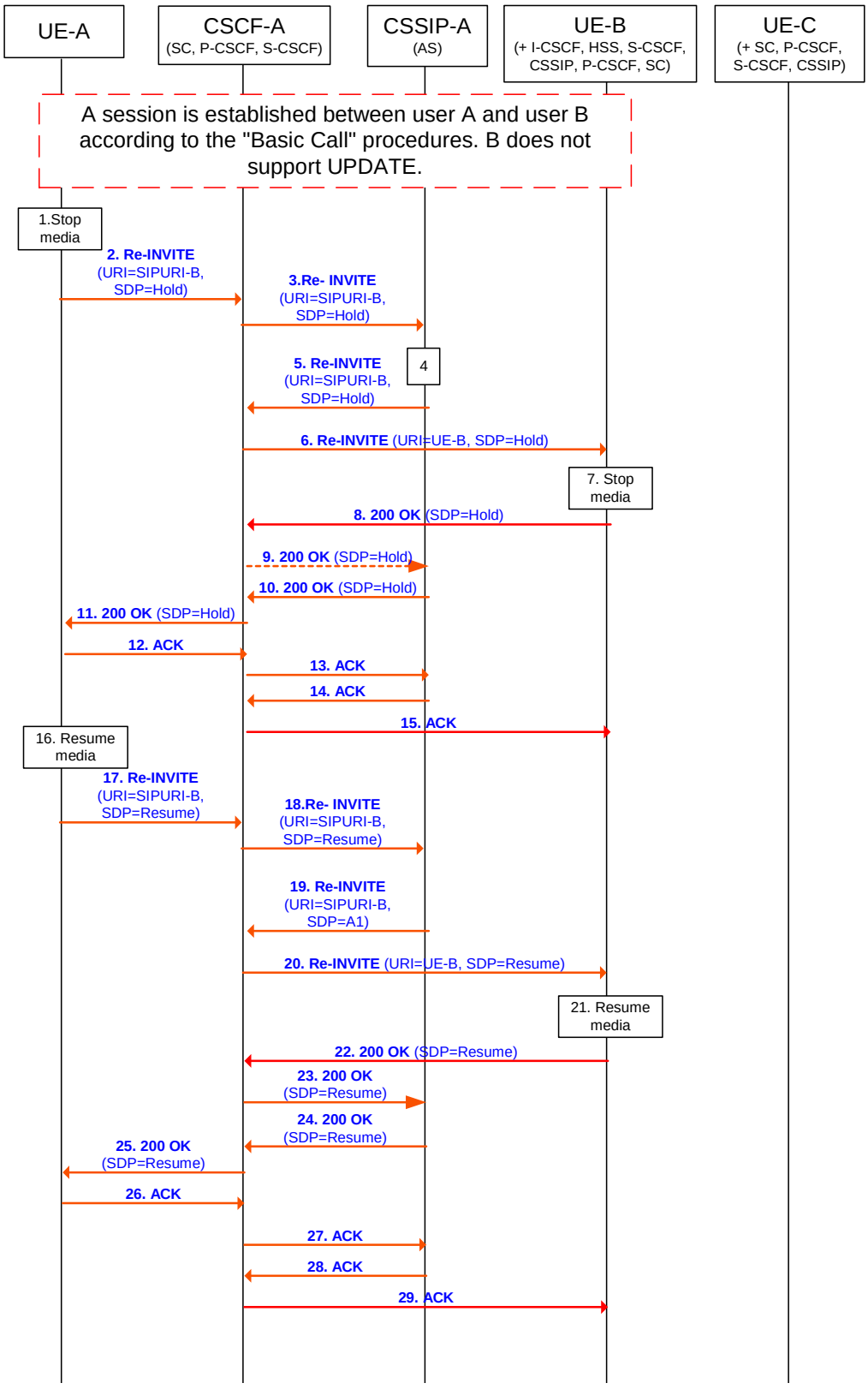

Figure 3 (continued): CH_U02_009

5.2.1.2 Communication with announcements

5.2.1.2.1 Communication Hold with support for UPDATE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithAnnounc/WithUPDATE	CH_U03_001	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
The emote user is put on hold, an announcement starts to the held user. The UPDATE method is used. Individual media streams are affected.
Ensure that when the remote user is set on HOLD, an announcement is started to the remote UE. An UPDATE is sent to the remote user B with SDP a=sendonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(**sendonly**)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithAnnounc/WithUPDATE	CH_U03_002	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
The announcement is stopped after the held user puts the media stream on hold. The UPDATE method is used. Individual media streams are affected.
Ensure that no announcement is started to any user if the media stream was previously put on hold by user A is subsequently put on hold by user B. An UPDATE is sent to User A with a SDP a=inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (recvonly)
		Announcement to UE B		
UPDATE(inactive)	←		←	UPDATE(**inactive**)
200 OK UPDATE (inactive)	→		→	200 OK UPDATE (**inactive**)
		Media sream is stopped		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithUPDATE	CH_U03_003	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
The announcement is stopped after retrieve. Individual media streams are affected.
Ensure that the announcement started to user B is stopped when the user B is retrieved by user A. An UPDATE is sent with SDP a=sendrecv. The normal conversation shall apply between user A and user B. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (recvonly)
		Announcement to UE B		
UPDATE(sendrecv)	→		→	UPDATE(**sendrecv**)
200 OK UPDATE (sendrecv)	←		←	200 OK UPDATE (**sendrecv**)
		Conversation		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithUPDATE	CH_U03_004	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
Announcement is started to user B when user B retrieves the connection. Individual media streams are affected.
Ensure that when user B retrieves the connection and is still held by the user A (was previously set on hold by user A), an UPDATE with SDP a=recvonly is sent to user A, the announcement is started to user B

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (recvonly)
		Announcement to UE B		
UPDATE(inactive)	←		←	UPDATE(inactive)
200 OK UPDATE (inactive)	→		→	200 OK UPDATE (inactive)
		Media sream is stopped		
UPDATE(recvonly)	←		←	UPDATE(**recvonly**)
200 OK UPDATE (sendonly)	→		→	200 OK UPDATE (**sendonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithAnnounc/WithUPDATE	CH_U03_005	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
The emote user is put on hold, an announcement starts to the held user. The UPDATE method is used. All the media streams are affected.
Ensure that when the remote user is set on HOLD, an announcement is started to the remote UE. An UPDATE is sent to the remote user with SDP a=sendonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
		Conversation		
UPDATE(sendonly)	→		→	UPDATE(**sendonly**)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithAnnounc/WithUPDATE	CH_U03_006	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
The announcement is stopped after the held user puts the media stream on hold. The UPDATE method is used. All the media streams are affected.
Ensure that no announcement is started to any user if the media stream was prevviously put on hold by user A is subsequently put on hold by user B. An UPDATE is sent to User A with a SDP a=inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(**sendonly**)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (recvonly)
				Announcement to UE B
UPDATE(inactive)	←		←	UPDATE(**inactive**)
200 OK UPDATE (inactive)	→		→	200 OK UPDATE (**inactive**)
				Media sream is stopped
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithUPDATE	CH_U03_007	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
Announcement is stopped after retrieve. All the media streams are affected.
Ensure that the announcement started to user B is stopped when the user B is retrieved by user A. An UPDATE is sent with SDP a=sendrecv. The normal conversation shall apply between user A and user B. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
		Announcement to UE B		
UPDATE(sendrecv)	→		→	UPDATE(**sendrecv**)
200 OK UPDATE (sendrecv)	←		←	200 OK UPDATE (**sendrecv**)
		Conversation		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithUPDATE	CH_U03_008	4.5.2.1	PICS 1/2 AND PICS 1/3

Test purpose:
Announcement is started to user B when user B retrieves the connection. All the media streams are affected.
Ensure that when user B retrieves the connection and is still held by the user A (was previously set on hold by user A), an UPDATE with SDP a=recvonly is sent to user A, the announcement is started to user B

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (recvonly)
UPDATE(inactive)	←		←	UPDATE(inactive)
200 OK UPDATE (inactive)	→		→	200 OK UPDATE (inactive)
UPDATE(recvonly)	←		←	UPDATE(**recvonly**)
200 OK UPDATE (sendonly)	→		→	200 OK UPDATE (**sendonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.2.1.2.2 Communication Hold without support for UPDATE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_001	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
The emote user is put on hold, an announcement starts to the held user. The INVITE method is used. Individual media streams are affected.
Ensure that when the remote user is set on HOLD, an announcement is started to the remote UE. An INVITE is sent to the remote user with SDP a=sendonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE (**sendonly**)
200 OK INVITE (recvonly)	←		←	200 OK INVITE (**recvonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_002	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
The announcement is stopped after the held user puts the media stream on hold. The INVITE method is used. Individual media streams are affected.
Ensure that no announcement is started to any user if the media stream was previously put on hold by user A is subsequently put on hold by user B. An INVITE is sent to User A with a SDP a=inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE (**sendonly**)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(recvonly)
		Announcement to UE B		
INVITE (inactive)	←		←	INVITE (**inactive**)
200 OK INVITE (inactive)	→		→	200 OK INVITE (**inactive**)
		Media sream is stopped		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_003	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
Announcement is stopped after retrieve. The INVITE method is used. Individual media streams are affected.
Ensure that the announcement started to user B is stopped when the user B is retrieved by user A. An INVITE is sent with SDP a=sendrecv. The normal conversation shall apply between user A and user B. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE (**recvonly**)
		Announcement to UE B		
INVITE (sendrecv)	→		→	INVITE (**sendrecv**)
200 OK INVITE (sendrecv)	←		←	200 OK INVITE (**sendrecv**)
		Conversation		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_004	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
Announcement is started to user B when user B retrieves the connection. The INVITE method is used. Individual media streams are affected.
Ensure that when user B retrieves the connection and is still held by the user A (was previously set on hold by user A), an INVITE with SDP a=recvonly is sent to user A, the announcement is started to user B

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(recvonly)
INVITE (inactive)	←		←	INVITE(inactive)
200 OK INVITE (inactive)	→		→	200 OK INVITE(inactive)
INVITE (recvonly)	←		←	INVITE (**recvonly**)
200 OK INVITE (sendonly)	→		→	200 OK INVITE (**sendonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_005	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
The emote user is put on hold, an announcement starts to the held user. The INVITE method is used. All the media streams are affected.
Ensure that when the remote user is set on HOLD, an announcement is started to the remote UE. An INVITE is sent to the remote user with SDP a=sendonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE (**sendonly**)
200 OK INVITE (recvonly)	←		←	200 OK INVITE (**recvonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_006	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
The announcement is stopped after the held user puts the media stream on hold. The INVITE method is used. All the media streams are affected.
Ensure that no announcement is started to any user if the media stream was previously put on hold by user A is subsequently put on hold by user B. An INVITE is sent to User A with a SDP a=inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE (**sendonly**)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(recvonly)
		Announcement to UE B		
INVITE (inactive)	←		←	INVITE (**inactive**)
200 OK INVITE (inactive)	→		→	200 OK INVITE (**inactive**)
		Media sream is stopped		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_007	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
Announcement is stopped after retrieve. The INVITE method is used. All the media streams are affected.
Ensure that the announcement started to user B is stopped when the user B is retrieved by user A. An INVITE is sent with SDP a=sendrecv. The normal conversation shall apply between user A and user B. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE (**recvonly**)
		Announcement to UE B		
INVITE (sendrecv)	→		→	INVITE (**sendrecv**)
200 OK INVITE (sendrecv)	←		←	200 OK INVITE (**sendrecv**)
		Conversation		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
ServedUser/WithAnnounc/WithoutUPDATE	CH_U04_008	4.5.2.1	NOT PICS 1/2 AND PICS 1/3

Test purpose:
Announcement is started to user B when user B retrieves the connection. The INVIT method id used. All the media streams are affected.
Ensure that when user B retrieves the connection and is still held by the user A (was previously set on hold by user A), an INVITE with SDP a=recvonly is sent to user A, the announcement is started to user B

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(recvonly)
INVITE (inactive)	←		←	INVITE(inactive)
200 OK INVITE (inactive)	→		→	200 OK INVITE(inactive)
INVITE (recvonly)	←		←	INVITE (**recvonly**)
200 OK INVITE (sendonly)	→		→	200 OK INVITE (**sendonly**)
		Announcement to UE B		
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.2.1.3 The early dialogue is established

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/RingingState	CH_U05_001a		PICS 1/1

Test purpose:
The caller puts the media stream on hold; the early dialogue is established.
Ensure that the IUT requesting to **hold the session** sends an UPDATE to hold the session. Hold is done containing the SDP with the attribute 'a=' **sendonly**. The IUT after requesting the hold session *receives a 200 OK (UPDATE) message* containing the SDP with the attribute 'a=' **reconly**.

Precondition:
early dialogue was established between user A and user B according to the 'basic Call' procedures

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
UPDATE(**sendonly**)	→		→	UPDATE(sendonly)
200 OK UPDATE (**recvonly**)	←		←	200 OK UPDATE (recvonly)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
ServedUser/RingingState	CH_U05_002	4.5.2.1	PICS 1/1

Test purpose:
The caller retrieves the media stream; the early dialogue is established.
Ensure that the IUT is requesting to **resume the session** with user B the UE-A starts sending media and sends a UPDATE to resume the session with the supported codec in the SDP. The IUT after requesting the hold session receives a *200 OK (UPDATE)* message containing the SDP with the supported codec. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
session was established between user A and user B according to the 'basic Call' procedures

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
UPDATE(**sendonly**)	→		→	UPDATE(sendonly)
200 OK UPDATE (**recvonly**)	←		←	200 OK UPDATE (recvonly)
UPDATE(**sendrecv**)	→		→	UPDATE(sendrecv)
200 OK UPDATE (**sendrecv**)	←		←	200 OK UPDATE (sendrecv)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.2.2 Remote User

5.2.2.1 Communication Hold with support for UPDATE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_001	4.5.2.1	PICS 1/2

Test purpose:
Terminating UE is put on hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to sendrecv.
Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' sendonly. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendrecv'
Individual media streams

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_001	4.5.2.1	PICS 1/2

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE (**sendrecv**)
UPDATE(sendonly)	→		→	UPDATE(**sendonly**)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_002	4.5.2.1	PICS 1/2

Test purpose:
Terminating UE is put on hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to sendonly.
Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' inactive. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendonly'
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(**sendonly**)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(**inactive**)	→		→	UPDATE(**inactive**)
200 OK UPDATE (**inactive**)	←		←	200 OK UPDATE (**inactive**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_003	4.5.2.1	PICS 1/2

Test purpose:
Terminating UE is put on hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to recvonly.
Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' sendrecv in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendrecv in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'recvonly'
Individual media streams

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_003	4.5.2.1	PICS 1/2

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
UPDATE(sendrecv)	→		→	UPDATE(**sendrecv**)
200 OK UPDATE (sendrecv)	←		←	200 OK UPDATE (**sendrecv**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_004	4.5.2.1	PICS 1/2

Test purpose:

Terminating UE is put on hold. UPDATE method is used. Individual media streams are affected. The media stream was previously set to inactive.

Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' recvonly in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendonly in the SDP.

Precondition:

A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'inactive'
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(sendonly)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(**inactive**)	→		→	UPDATE(inactive)
200 OK UPDATE (**inactive**)	←		←	200 OK UPDATE (**inactive**)
UPDATE(recvonly)	→		→	UPDATE(**recvonly**)
200 OK UPDATE (sendonly)	←		←	200 OK UPDATE (**sendonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_005	4.5.2.1	PICS 1/2

Test purpose:

Terminating UE is put on hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to sendrecv

Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' sendonly. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:

A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendrecv'
Media streams in the SDP

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_005	4.5.2.1	PICS 1/2

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE (**sendrecv**)
UPDATE(sendonly)	→		→	UPDATE(**sendonly**)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_006	4.5.2.1	PICS 1/2

Test purpose:

Terminating UE is put on hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to sendonly.

Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' inactive. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:

A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendonly'
Media streams in the SDP

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(**sendonly**)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(**inactive**)	→		→	UPDATE(**inactive**)
200 OK UPDATE (**inactive**)	←		←	200 OK UPDATE (inactive)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_007	4.5.2.1	PICS 1/2

Test purpose:
Terminating UE is put on hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to recvonly.
Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' sendrecv in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendrecv in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'recvonly'
Media streams in the SDP

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	→		→	UPDATE(sendonly)
200 OK UPDATE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
UPDATE(sendrecv)	→		→	UPDATE(**sendrecv**)
200 OK UPDATE (sendrecv)	←		←	200 OK UPDATE (**sendrecv**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/ WithUPDATE	CH_U06_008	4.5.2.1	PICS 1/2

Test purpose:
Terminating UE is put on hold. UPDATE method is used. All the media streams are affected. The media stream was previously set to inactive.
Ensure that when the IUT detects a request from the served user to hold the active session and receives UPDATE to hold the session with the attribute 'a=' recvonly in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendonly in the SDP.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'inactive'
Media streams in the SDP

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
UPDATE(sendonly)	←		←	UPDATE(sendonly)
200 OK UPDATE (recvonly)	→		→	200 OK UPDATE (recvonly)
UPDATE(inactive)	→		→	UPDATE(inactive)
200 OK UPDATE (inactive)	←		←	200 OK UPDATE (**inactive**)
UPDATE(recvonly)	→		→	UPDATE(**recvonly**)
200 OK UPDATE (sendonly)	←		←	200 OK UPDATE (**sendonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

5.2.2.2 Communication Hold without support for UPDATE

TSS	TP	HOLD reference	Selection expression
RemoteUser/WithoutUPDATE	CH_U07_001	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. Individual media streams are affected. The media stream was previously set to sendrecv.
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' sendonly. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendrecv'
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE(**sendrecv**)
INVITE(sendonly)	→		→	INVITE(**sendonly**)
200 OK INVITE (recvonly)	←		←	OK INVITE (**recvonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
RemoteUser/WithoutUPDATE	CH_U07_002	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. Individual media streams are affected. The media stream was previously set tosendonly
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' inactive. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendonly'
Individual media streams

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	←		←	INVITE (**sendonly**)
200 OK INVITE (recvonly)	→		→	200 OK INVITE(recvonly)
INVITE (inactive)	→		→	INVITE (**inactive**)
OK INVITE (inactive)	←		←	200 OK INVITE (**inactive**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/WithoutUPDATE	CH_U07_003	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. Individual media streams are affected. The media stream was previously set torecvonly.
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' sendrecv in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendrecv in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'recvonly'
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK UPDATE (**recvonly**)
INVITE (sendrecv)	→		→	INVITE (**sendrecv**)
200 OK INVITE (sendrecv)	←		←	200 OK INVITE (**sendrecv**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/WithoutUPDATE	CH_U07_004	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. Individual media streams are affected. The media stream was previously set to inactive.
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' recvonly in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendonly in the SDP.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'inactive'
Individual media streams

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	←		←	INVITE(sendonly)
200 OK INVITE (recvonly)	→		→	200 OK INVITE(recvonly)
INVITE(inactive)	→		→	INVITE(**inactive**)
200 OK INVITE (inactive)	←		←	200 OK INVITE(inactive)
INVITE(recvonly)	→		→	INVITE(**recvonly**)
200 OK INVITE (sendonly)	←		←	200 OK INVITE(**sendonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/WithoutUPDATE	CH_U07_005	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. All the media streams are affected. The media stream was previously set to sendrecv.
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' sendonly. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' recvonly.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'sendrecv'
Media streams in the SDP

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE (**sendonly**)
200 OK INVITE (recvonly)	←		←	200 OK INVITE (**recvonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	**TP**	**HOLD reference**	**Selection expression**
RemoteUser/WithoutUPDATE	CH_U07_006	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. All the media streams are affected. The media stream was previously set to recvonly.
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' inactive. The IUT after requesting the hold session sends 200 OK final response containing the SDP with the attribute 'a=' inactive.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'recvonly'
Media streams in the SDP

Comments:

UA C		**SUT**		**SIP**
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	←		←	INVITE(sendonly)
200 OK INVITE (recvonly)	→		→	200 OK INVITE(recvonly)
INVITE (inactive)	→		→	INVITE(**inactive**)
200 OK INVITE (inactive)	←		←	200 OK INVITE(**inactive**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
RemoteUser/WithoutUPDATE	CH_U07_007	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. All the media streams are affected. The media stream was previously set to recvonly.
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' sendrecv in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendrecv in the SDP. The a=sendrecv attribute is the default value therefore the attribute can be omitted.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'recvonly'
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	→		→	INVITE(sendonly)
200 OK INVITE (recvonly)	←		←	200 OK INVITE(**recvonly**)
INVITE(sendrecv)	→		→	INVITE(**sendrecv**)
200 OK INVITE (sendrecv)	←		←	200 OK INVITE(**sendrecv**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

TSS	TP	HOLD reference	Selection expression
RemoteUser/WithoutUPDATE	CH_U07_008	4.5.2.1	NOT PICS 1/2

Test purpose:
Terminating UE is put on hold. INVITE method is used. All the media streams are affected. The media stream was previously set to inactive.
Ensure that when the IUT detects a request from the served user to hold the active session and receives INVITE to hold the session with the attribute 'a=' recvonly in the SDP. The IUT after requesting the hold session sends 200 OK final response and optionally the attribute 'a=' sendonly in the SDP.

Precondition:
A session was established between user A and user B according to the 'basic Call' procedures
The media stream was previously set to 'inactive'
Media streams in the SDP

Comments:

UA C		SUT		SIP
INVITE (**sendrecv**)	→		→	INVITE
180 Ringing	←		←	180 Ringing
200 OK INVITE	←		←	200 OK INVITE
INVITE(sendonly)	←		←	INVITE(sendonly)
200 OK INVITE (recvonly)	→		→	200 OK INVITE(recvonly)
INVITE(inactive)	→		→	INVITE(inactive)
200 OK INVITE (inactive)	←		←	200 OK INVITE(**inactive**)
INVITE(recvonly)	→		→	INVITE(**recvonly**)
200 OK INVITE (sendonly)	←		←	200 OK INVITE(**sendonly**)
BYE	→		→	BYE
200 OK BYE	←		←	200 OK BYE

6 Interworking between SIP und ISUP

6.1 SIP - ISUP

TP502001	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	SIP-ISUP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party The called party should be able to put the other party on hold The called party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**SIP** **MGCF** **ISUP** INVITE → → IAM 180 Ringing ← ← ACM 200 OK INVITE ← ← ANM INVITE(sendonly) → → CPG(hold) 200 OK INVITE(recvonly) ← INVITE(sendrecv) → → CPG(retrieve) 200 OK INVITE(sendrecv) ← INVITE(sendonly) ← ← CPG(hold) 200 OK INVITE(recvonly) → INVITE(sendrecv) ← ← CPG(retrieve) 200 OK INVITE(sendrecv) →	

TP502002	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	SIP-ISUP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service Support the invokation of the service in the alerting state	
Test purpose:	Ensure that a party can put the other party on hold in the alerting state. Ensure that the party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**SIP** **MGCF** **ISUP** INVITE → → IAM 180 Ringing ← ← ACM UPDATE(sendonly) → → CPG(hold) 200 OK UPDATE(recvonly) ← UPDATE(sendrecv) → → CPG(retrieve) 200 OK UPDATE(sendrecv) ←	

TP502003	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	SIP-ISUP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams Support the invokation of the service after the calling user has provided all of the information necessary for processing the call	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold after the calling user has provided all of the information necessary for processing the call. Ensure that the party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version> incremented	
ISUP Parameter values:	ACM: called party status: no indication CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval Event indicator PROGRESS (retrieve the call)	
Comments:	**SIP** **MGCF** **ISUP** INVITE → → IAM UPDATE(sendonly) → 200 OK UPDATE(recvonly) ← UPDATE(sendrecv) → 200 OK UPDATE(sendrecv) ←	
NOTE: A CPG is not sent before an ACM was received.		

TP502004	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	SIP-ISUP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**SIP** **MGCF** **ISUP** INVITE → → IAM 180 Ringing ← ← ACM 200 OK INVITE ← ← ANM UPDATE(sendonly) → → CPG(hold) 200 OK INVITE(recvonly) ← UPDATE(sendrecv) → → CPG(retrieve) 200 OK UPDATE(recvonly) ←	

TP502005	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	SIP-ISUP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams The MGCF sends the update of the media stream in an UPDATE message	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party can retrieve the call previously put on hold. The called party should be able to put the other party on hold The called party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**SIP** **MGCF** **ISUP** INVITE → → IAM 180 Ringing ← ← ACM 200 OK INVITE ← ← ANM UPDATE(sendonly) ← ← CPG(hold) 200 OK INVITE(recvonly) → UPDATE(sendrecv) ← ← CPG(retrieve) 200 OK UPDATE(recvonly) →	

TP502006	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	SIP-ISUP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party in held state can put the remote party put on hold. Ensure that a party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The called party should be able to put the other party on hold The calling party should be able to retrieve the other party The called party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly or a=inactive (put on hold) a=sendrecv or a=recvonly or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**SIP** **MGCF** **ISUP** INVITE → → 180 Ringing ← ← 200 OK INVITE ← ← INVITE(sendonly) → → CPG(hold) 200 OK INVITE(recvonly) ← INVITE(inactive) ← ← CPG(hold) 200 OK INVITE(inactive) → INVITE(recvonly) → → CPG(retrieve) 200 OK INVITE(sendonly) ← INVITE(sendrecv) ← ← CPG(retrieve) 200 OK INVITE(sendrecv) →	

TP502007	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	SIP-ISUP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party in held state can put the remote party put on hold. Ensure that a party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The called party should be able to put the other party on hold The called party should be able to retrieve the other party The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly or a=inactive (put on hold) a=sendrecv or a=recvonly or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**SIP** **MGCF** **ISUP** INVITE → → 180 Ringing ← ← 200 OK INVITE ← ← INVITE(sendonly) → → CPG(hold) 200 OK INVITE(recvonly) ← INVITE(inactive) ← ← CPG(hold) 200 OK INVITE(inactive) → INVITE(recvonly) ← ← CPG(retrieve) 200 OK INVITE(sendonly) → INVITE(sendrecv) → → CPG(retrieve) 200 OK INVITE(sendrecv) ←	

6.2 ISUP - SIP

TP602001	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	ISUP-SIP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party The called party should be able to put the other party on hold The called party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**ISUP/BICC** **MGCF** **SIP** IAM → → INVITE ACM ← ← 180 Ringing ANM ← ← 200 OK INVITE CPG(hold) → → INVITE(sendonly) ← 200 OK INVITE(recvonly) CPG(retrieve) → → INVITE(sendrecv) ← 200 OK INVITE(sendrecv) CPG(hold) ← ← INVITE(sendonly) → 200 OK INVITE(recvonly) CPG(retrieve) ← ← INVITE(sendrecv) → 200 OK INVITE(sendrecv)	

TP602002	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	ISUP-SIP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams Support the invokation of the service in the alerting state	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold in the alerting state. Ensure that the party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**ISUP/BICC** **MGCF** **SIP** IAM → → INVITE ACM ← ← 180 Ringing CPG(hold) → → UPDATE(sendonly) ← 200 OK UPDATE(recevonly) CPG(retrieve) → → UPDATE(sendrecv) ← 200 OK UPDATE(sendrecv)	

TP602003	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	ISUP-SIP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold after the calling user has provided all of the information necessary for processing the call. Ensure that the party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	ACM: called party status: no indication CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**ISUP/BICC** **MGCF** **SIP** IAM → → INVITE ACM ← ← 180 Ringing ANM ← ← 200 OK INVITE CPG(hold) ← ← UPDATE(sendonly) → 200 OK UPDATE(recevonly) CPG(retrieve) ← ← UPDATE(sendrecv) → 200 OK UPDATE(sendrecv)	

TP602004	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	ISUP-SIP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams The MGCF sends the update of the media stream in an UPDATE message	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold in the alerting state. Ensure that the party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**ISUP/BICC** **MGCF** **SIP** IAM → → INVITE ACM ← ← 180 Ringing ANM ← ← 200 OK INVITE CPG(hold) → → UPDATE(sendonly) ← 200 OK UPDATE(recevonly) CPG(retrieve) → → UPDATE(sendrecv) ← 200 OK UPDATE(sendrecv)	

TP602005	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	ISUP-SIP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The called party should be able to put the other party on hold The calling party should be able to retrieve the other party The called party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**ISUP/BICC** **MGCF** **SIP** IAM → → INVITE ACM ← ← 180 Ringing ANM ← ← 200 OK INVITE CPG(hold) → → INVITE(sendonly) ← 200 OK INVITE(recvonly) CPG(hold) ← ← INVITE(inactive) → 200 OK INVITE(inactive) CPG(retrieve) → → INVITE(recvonly) ← 200 OK INVITE(sendonly) CPG(retrieve) ← ← INVITE(sendrecv) → 200 OK INVITE(sendrecv)	

TP602006	SIP reference: RFC 3261 [14]	ISUP reference: EN 300 356 series [15]
TSS reference:	ISUP-SIP/SS/HOLD/	
SIP selection criteria:	Support the temporarily stops sending one or more unicast media streams	
ISUP selection criteria:	Support the generic notification procedure for HOLD supplementary service	
Test purpose:	Ensure that a party can put the other party on hold at any time after the call is answered and before call clearing has begun. Ensure that a party can retrieve the call previously put on hold. The calling party should be able to put the other party on hold The called party should be able to put the other party on hold The called party should be able to retrieve the other party The calling party should be able to retrieve the other party	
SIP Parameter values:	SDP: a=sendonly (put on hold) a=sendrecv or omitted (retrieve the call) o= . . <version incremented>	
ISUP Parameter values:	CPG: Generic notification: remote hold Event indicator PROGRESS (put on hold) Generic notification: remote retrieval event indicator PROGRESS (retrieve the call)	
Comments:	**ISUP/BICC** **MGCF** **SIP** IAM → → INVITE ACM ← ← 180 Ringing ANM ← ← 200 OK INVITE CPG(hold) → → INVITE(sendonly) ← 200 OK INVITE(recvonly) CPG(hold) ← ← INVITE(inactive) → 200 OK INVITE(inactive) CPG(retrieve) ← ← INVITE(recvonly) → 200 OK INVITE(sendonly) CPG(retrieve) → → INVITE(sendrecv) ← 200 OK INVITE(sendrecv)	

7 Compliance

An ATS which complies with this TSS&TP specification shall:

a) consist of a set of test cases corresponding to the set or to a subset of the TPs specified in clause 5;

b) use a TSS which is an appropriate subset of the whole of the TSS specified in clause 4;

c) use the same naming conventions for the test groups and test cases;

d) maintain the relationship specified in clause 5 between the test groups and TPs and the entries in the PICS proforma to be used for test case deselection;

e) comply with ISO/IEC 9646-2.

In the case of a) or b) above, a subset shall be used only where a particular Abstract Test Method (ATM) makes some TPs untestable. All testable TPs from clause 5 shall be included in a compliant ATS.

8 Requirements for a comprehensive testing service

As a minimum the Remote test method, as specified in ISO/IEC 9646-2, shall be used by any organization claiming to provide a comprehensive testing service for user equipment claiming conformance to EN 300 092-1 [11].

Annex A (informative): Bibliography

- ETSI TS 122 228: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Service requirements for the Internet Protocol (IP) multimedia core network subsystem (IMS); Stage 1 (3GPP TS 22.228)".
- ETSI TS 123 228: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228)".
- ETSI TS 124 228: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.228)".
- ETSI TS 124 229: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229)".
- ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".

History

Document history		
V1.1.1	July 2006	Publication