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TECHNICAL SPECIFICATION

**Core Network and Interoperability Testing (INT);
Communication HOLD (HOLD) using IP Multimedia (IM)
Core Network (CN) subsystem;
Conformance test specification
(3GPP™ Release 10);
Part 2: Test Suite Structure and Test Purposes (TSS&TP)**

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Foreword

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

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

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

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

Modal verbs terminology

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

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

1   Scope

The present document provides the Test Suite Structure (TSS) and Test Purposes (TP) for the test specifications for the Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem as specified in ETSI TS 124 610 [1] and IETF RFC 3264 [6] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5] and ETSI ETS 300 406 [3].

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 reference document (including any amendments) applies.

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

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

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

[1]   ETSI TS 124 610: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.610 Release 10)".

[2]   ETSI TS 186 007-1: "Core Network and Interoperability Testing (INT); Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance test specification (3GPP Release 10) Part 1: Protocol Implementation Conformance Statement (PICS)".

[3]   ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

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

[5]   ISO/IEC 9646-7: "Information technology -- Open systems interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".

[6]   IETF RFC 3264: "An Offer/Answer Model with the Session Description Protocol (SDP)".

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 reference document (including any amendments) applies.

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

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

Not applicable.

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 124 610 [1] and the following apply:

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [4].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [4].

PICS proforma: Refer to ISO/IEC 9646-1 [4].

point of control and observation: Refer to ISO/IEC 9646-1 [4].

Protocol Implementation Conformance Statement (PICS): Refer to ISO/IEC 9646-1 [4].

System Under Test (SUT): Refer to ISO/IEC 9646-1 [4].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [4].

   NOTE: This may contain additional information.

3.2   Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 610 [1] and the following apply:

   IUT   Implementation Under Test
   SUT   System Under Test
   TSS   Test Suite Structure
   UE   User Equipment

4   Test Suite Structure (TSS) and Test configuration

4.0   Introduction

Table 1: Test suite structure

ServedUser		
	WithUPDATE	CH_U01_xxx
	WithoutUPDATE	CH_U02_xxx
Network		
		CH_N01_xxx

4.1   Configuration

The scope of the present document is to test the signalling and procedural aspects of the stage 3 requirements as described in ETSI TS 124 610 [1]. The stage 3 description respects the requirements to several network entities and also to requirements regarding to end devices. Therefore several interfaces (reference points) are addressed to satisfy the test of the different entities.

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

Testing of the Network: This entity is responsible to perform the service. In case only the Gm interface is accessible this shall be used instead. In this case, be aware that the verification of several requirements is impeded.
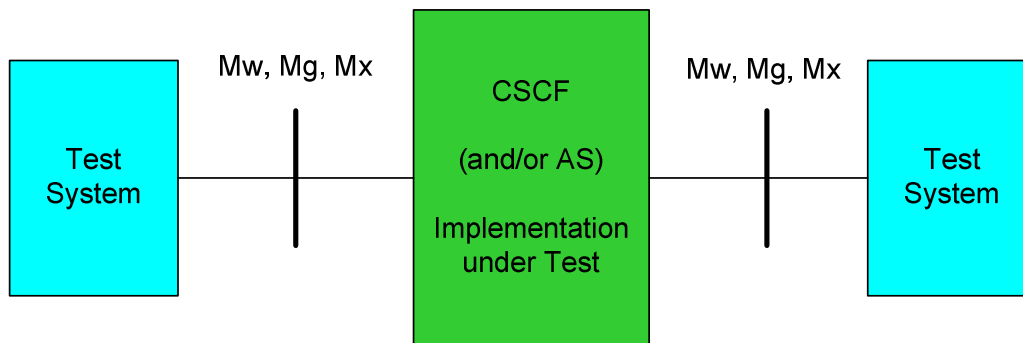
Figure 1: Applicable interfaces to test using the (generic) NNI interface

Testing of User Equipment: There are several requirements regarding to the end devices. Therefore a special configuration appears
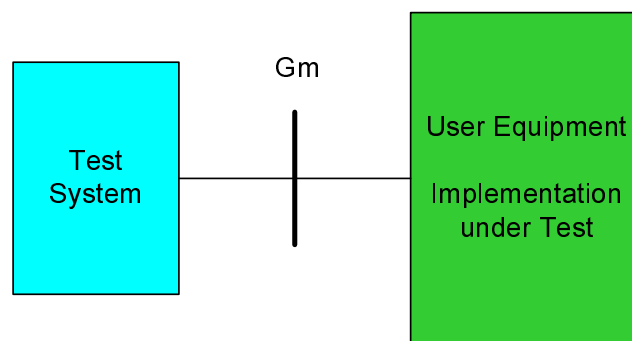
Figure 2: Applicable configuration to test the User Equipment

5 Test Purposes (TP)

5.1 Introduction

5.1.1 TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 2).

Table 2: 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 ETSI TS 124 610 [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 186 007-1 [2].

5.2   User TPs for HOLD

5.2.0   Introduction

All PICS items referred to in this clause are as specified in ETSI TS 186 007-1 [2] unless indicated otherwise by another numbered reference.

5.2.1   Served user

5.2.1.1   Communication Hold with support for UPDATE

TSS ServedUser/WithUPDATE	TP CH_U01_001	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2
Test purpose: *Session hold. UPDATE method is used. Individual media stream is affected. The media stream was previously set to sendrecv.* Ensure that the IUT to hold an individual media stream of the communication session, sends an UPDATE request containing an SDP body with an attribute line indicating 'a= sendonly'.			
Precondition: • A session was established between the served user and a remote user according to the 'basic Call' procedures • The media stream was previously set to 'sendrecv' • One individual media stream			
Comments:			

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	➔	UPDATE(**sendonly**)
	⬅	200 OK (recvonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_002	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2
Test purpose: *Session hold. UPDATE method is used. Individual media stream is affected. The media stream was previously set to sendrecv.* Ensure that the IUT responds to the hold request of an individual media stream of the communication session from the remote party, sends a 200 OK INVITE/UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.			
Precondition: • A session was established between the served user and a remote user according to the 'basic Call' procedures • The media stream was previously set to 'sendrecv' • One individual media stream			
Comments:			

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	⬅	UPDATE(sendonly)
	➔	200 OK (**recvonly**)
CASE B	⬅	INVITE(sendonly)
	➔	200 OK (**recvonly**)
	⬅	ACK
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
ServedUser/WithUPDATE	CH_U01_003	4.5.2.1	PICS 4.1/1 AND PICS 4.2/2

Test purpose:
Session hold. UPDATE method is used. Individual media stream is affected. The media stream was previously set to recvonly.
Ensure that the IUT to hold an individual media stream of the communication session, sends an UPDATE request containing an SDP body with an attribute line indicating 'a=inactive'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'recvonly'
- One individual media stream

Comments:		
User Equipment	**SUT**	**Test Equipment**
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
User invokes the HOLD service	→	UPDATE(**inactive**)
	←	200 OK (inactive)
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
ServedUser/WithUPDATE	CH_U01_004	4.5.2.1	PICS 4.1/1 AND PICS 4.2/2

Test purpose:
Session resume. UPDATE method is used. Individual media stream is affected. The media stream was previously set to sendonly.
Ensure that the IUT to resume an individual media stream of the communication session, sends an UPDATE request containing an SDP body with an attribute line indicating 'a=sendrecv' or without attribute line.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly'
- One individual media stream

Comments:		
User Equipment	**SUT**	**Test Equipment**
	Establish a confirmed session	
User invokes the HOLD service	→	UPDATE(**sendonly**)
	←	200 OK (recvonly)
User resumes the session	→	UPDATE(**sendrecv** or absent)
	←	200 OK (sendrecv or absent)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_005	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2

Test purpose:

Session resume. UPDATE method is used. Individual media streams are affected. The media stream was previously set to inactive.

Ensure that the IUT to resume an individual media stream of the communication session, sends an UPDATE request containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'inactive'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
User invokes the HOLD service	→	UPDATE(**inactive**)
	←	200 OK (inactive)
User resumes the media session	→	UPDATE(**recvonly**)
	←	200 OK (sendonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_006	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2

Test purpose:

Session hold. UPDATE method is used. Individual media stream is affected. The media stream was previously set to inactive.

Ensure that the IUT to resume an individual media stream of the communication session, sends an UPDATE request containing an SDP body with an attribute line indicating 'a=sendonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'inactive'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	→	UPDATE(**sendonly**)
	←	200 OK (recvonly)
CASE A	←	UPDATE(**inactive**)
	→	200 OK (inactive)
CASE B	←	INVITE(**inactive**)
	→	200 OK (inactive)
	←	ACK
User resumes the media session	→	UPDATE(**sendonly**)
	←	200 OK (recvonly)
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
ServedUser/WithUPDATE	CH_U01_007	4.5.2.1	PICS 4.1/1 AND PICS 4.2/1

Test purpose:
Session hold. UPDATE method is used. Individual media stream is affected. The media stream was previously set to sendrecv.
Ensure that the IUT to hold an individual media stream of an early dialogue, sends an UPDATE request containing an SDP body with an attribute line indicating 'a= sendonly'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish an early dialogue	
User invokes the HOLD service	➔	UPDATE(**sendonly**)
	←	200 OK (recvonly)
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
ServedUser/WithUPDATE	CH_U01_008	4.5.2.1	PICS 4.1/1 AND PICS 4.2/1

Test purpose:
Session hold. UPDATE method is used. Individual media stream is affected. The media stream was previously set to sendrecv.
Ensure that the IUT responds to the hold request of an individual media stream from the remote party of an early dialogue, sends a 200 OK UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish an early dialogue	
	←	UPDATE(sendonly)
	➔	200 OK (**recvonly**)
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
ServedUser/WithUPDATE	CH_U01_009	4.5.2.1	PICS 4.1/1 AND PICS 4.2/2

Test purpose:
Session hold. UPDATE method is used. All media streams are affected. The media streams were previously set to sendrecv.
Ensure that the IUT to hold all media streams of the communication session, sends an UPDATE request containing an SDP body with a session level direction attribute line indicating 'a=sendonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'sendrecv'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	➔	UPDATE(**sendonly**)
	←	200 OK (recvonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_010	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2

Test purpose:
Session hold. UPDATE method is used. All media streams are affected. The media streams were previously set to sendrecv.
Ensure that the IUT responds to hold request of all media streams of the communication session from the remote party, sends a 200 OK INVITE/UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_011	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2

Test purpose:
Session hold. UPDATE method is used. All media streams are affected. The media stream were previously set to recvonly.
Ensure that the IUT to hold all media streams of the communication session, sends an UPDATE request containing an SDP body with a session level direction attribute line indicating 'a=inactive'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'recvonly'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
User invokes the HOLD service	→	UPDATE(**inactive**)
	←	200 OK (inactive)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_012	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2

Test purpose:
Session resume. UPDATE method is used. All media streams are affected. The media stream were previously set to sendonly.
Ensure that the IUT to resume all media streams of the communication session, sends an UPDATE request containing an SDP body with a session level direction attribute line indicating 'a=sendrecv' or without attribute line.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'sendonly'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	➜	UPDATE(**sendonly**)
	⬅	200 OK (recvonly)
User resumes the session	➜	UPDATE(**sendrecv** or absent)
	⬅	200 OK (sendrecv or absent)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_013	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2

Test purpose:
Session resume. UPDATE method is used. All media streams are affected. The media streams were previously set to inactive.
Ensure that the IUT to resume all media streams of the communication session, sends an UPDATE request containing an SDP body with a session level direction attribute line indicating 'a=recvonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'inactive'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	⬅	UPDATE(**sendonly**)
	➜	200 OK (recvonly)
CASE B	⬅	INVITE(**sendonly**)
	➜	200 OK (recvonly)
	⬅	ACK
User invokes the HOLD service	➜	UPDATE(**inactive**)
	⬅	200 OK (inactive)
User resumes the media session	➜	UPDATE(**recvonly**)
	⬅	200 OK (sendonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_014	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/2
Test purpose: *Session hold. UPDATE method is used. All media streams are affected. The media streams were previously set to recvonly.* Ensure that the IUT to hold an individual media stream of the communication session, sends an UPDATE request containing an SDP body with an attribute line indicating 'a=inactive'.			
Precondition: • A session was established between the served user and a remote user according to the 'basic Call' procedures • The media stream was previously set to 'sendonly' • Individual media streams			

Comments:		
User Equipment	**SUT** **Establish a confirmed session**	**Test Equipment**
User invokes the HOLD service	→ ←	UPDATE(**sendonly**) 200 OK (recvonly)
CASE A	← →	UPDATE(**inactive**) 200 OK (inactive)
CASE B	← → ←	INVITE(**inactive**) 200 OK (inactive) ACK
User resumes the media session	→ ←	UPDATE(**sendonly**) 200 OK (recvonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_015	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/1
Test purpose: *Session hold. UPDATE method is used. All media streams are affected. The media stream was previously set to sendrecv.* Ensure that the IUT to hold all media streams of an early dialogue, sends an UPDATE request containing an SDP body with an attribute line indicating 'a= sendonly'.			
Precondition: • An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures • The media stream was previously set to 'sendrecv' • Individual media streams			

Comments:		
User Equipment	**SUT** **Establish an early dialogue**	**Test Equipment**
User invokes the HOLD service	→ ←	UPDATE(**sendonly**) 200 OK (recvonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U01_016	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/1
Test purpose: *Session hold. UPDATE method is used. All media streams are affected. The media streams were previously set to sendrecv.* Ensure that the IUT responds to the hold request of all individual media streams from the remote party of an early dialogue, sends a 200 OK UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.			
Precondition: - An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures - The media stream was previously set to 'sendrecv' - Individual media streams			
Comments:			

User Equipment	SUT	Test Equipment
	Establish an early dialogue	
	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
	Apply post test routine	

5.2.1.2 Communication Hold without support for UPDATE

TSS ServedUser/WithoutUPDATE	TP CH_U02_001	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2
Test purpose: *Session hold. UPDATE method is not used. Individual media stream is affected. The media stream was previously set to sendrecv.* Ensure that the IUT to hold an individual media stream of the communication session, sends a ReINVITE request containing an sdp body with an attribute line indicating 'a=sendonly'.			
Precondition: - A session was established between the served user and a remote user according to the 'basic Call' procedures - The media stream was previously set to 'sendrecv' - Individual media streams			
Comments:			

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	→	ReINVITE(**sendonly**)
	←	200 OK (recvonly)
	→	ACK
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U02_002	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. Individual media stream is affected. The media stream was previously set to sendrecv.
Ensure that the IUT responds to the hold request of an individual media stream of the communication session from the remote party, sends a 200 OK INVITE/UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.

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

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
	Apply post test routine	

TSS ServedUser/WithoutUPDATE	TP CH_U02_003	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. Individual media streams are affected. The media stream was previously set to recvonly.
Ensure that the IUT to hold an individual media streams of the communication session, sends a ReINVITE request containing an SDP body with an attribute line indicating 'a=inactive'.

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

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
User invokes the HOLD service	→	ReINVITE(**inactive**)
	←	200 OK (inactive)
	→	ACK
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutUPDATE	CH_U02_004	4.5.2.1	PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:

Session resume. UPDATE method is not used. Individual media stream is affected. The media stream was previously set to sendonly.

Ensure that the IUT to resume an individual media stream of the communication session, sends a ReINVITE request containing an SDP body with an attribute line indicating 'a=sendrecv' or without attribute line.

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

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	➜	ReINVITE(**sendonly**)
	⬅	200 OK (recvonly)
	➜	ACK
User resumes the session	➜	ReINVITE(**sendrecv** or absent)
	⬅	200 OK (sendrecv or absent)
	➜	ACK
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
ServedUser/WithoutUPDATE	CH_U02_005	4.5.2.1	PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:

Session resume. UPDATE method is not used. Individual media stream is affected. The media stream was previously set to inactive.

Ensure that the IUT to resume an individual media stream of the communication session, sends a ReINVITE request containing an SDP body with an attribute line indicating 'a=recvonly'.

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

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	⬅	UPDATE(sendonly)
	➜	200 OK (**recvonly**)
CASE B	⬅	INVITE(sendonly)
	➜	200 OK (**recvonly**)
	⬅	ACK
User invokes the HOLD service	➜	ReINVITE(**inactive**)
	⬅	200 OK (inactive)
	➜	ACK
User resumes the media session	➜	ReINVITE(**recvonly**)
	⬅	200 OK (sendonly)
	➜	ACK
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U02_006	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. Individual media stream is affected. The media stream was previously set to inactive.
Ensure that the IUT to resume an individual media stream of the communication session, sends a ReINVITE request containing an SDP body with an attribute line indicating 'a=sendonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'inactive'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	→	ReINVITE(**sendonly**)
	←	200 OK (recvonly)
	→	ACK
CASE A	←	UPDATE(**inactive**)
	→	200 OK (inactive)
CASE B	←	INVITE(**inactive**)
	→	200 OK (inactive)
	←	ACK
User resumes the media session	→	ReINVITE(**sendonly**)
	←	200 OK (recvonly)
	→	ACK
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U02_007	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. Individual media stream is affected. The media stream was previously set to sendrecv.
Ensure that the IUT to hold an individual media stream of an early dialogue, sends an UPDATE request containing an SDP body with an attribute line indicating 'a= sendonly'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish an early dialogue	
User invokes the HOLD service	→	UPDATE(**sendonly**)
	←	200 OK (recvonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U02_008	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. Individual media stream is affected. The media stream was previously set to sendrecv.
Ensure that the IUT responds to the hold request of an individual media stream from the remote party of an early dialogue, sends a 200 OK UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish an early dialogue	
	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
	Apply post test routine	

TSS ServedUser/WithoutUPDATE	TP CH_U02_009	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. All media streams are affected. The media streams were previously set to sendrecv.
Ensure that the IUT to hold all media streams of the communication session, sends a ReINVITE request containing an SDP body with a session level direction attribute line indicating 'a=sendonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'sendrecv'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	→	ReINVITE(**sendonly**)
	←	200 OK (recvonly)
	→	ACK
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U02_010	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. All media streams are affected. The media streams were previously set to sendrecv.
Ensure that the IUT responds to hold request of all media streams of the communication session from the remote party, sends a 200 OK INVITE/UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- One individual media stream

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
	Apply post test routine	

TSS ServedUser/WithoutUPDATE	TP CH_U02_011	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is not used. All media streams are affected. The media stream were previously set to recvonly.
Ensure that the IUT to hold all media streams of the communication session, sends a ReINVITE request containing an sdp body with a session level direction attribute line indicating 'a=inactive'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'recvonly'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
CASE B	←	INVITE(sendonly)
	→	200 OK (**recvonly**)
	←	ACK
User invokes the HOLD service	→	ReINVITE(**inactive**)
	←	200 OK (inactive)
	→	ACK
	Apply post test routine	

TSS ServedUser/WithoutUPDATE	TP CH_U02_012	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:

Session resume. UPDATE method is not used. All media streams are affected. The media stream was previously set to sendonly.

Ensure that the IUT to resume all media streams of the communication session, sends a ReINVITE request containing an sdp body with a session level direction attribute line indicating 'a=sendrecv' or without attribute line.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'sendonly'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	➔	ReINVITE(**sendonly**)
	⬅	200 OK (recvonly)
	➔	ACK
User resumes the session	➔	ReINVITE(**sendrecv** or absent)
	⬅	200 OK (sendrecv or absent)
	➔	ACK
	Apply post test routine	

TSS ServedUser/WithoutUPDATE	TP CH_U02_013	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:

Session resume. UPDATE method is not used. All media streams are affected. The media streams were previously set to inactive.

Ensure that the IUT to resume all media streams of the communication session, sends a ReINVITE request containing an sdp body with a session level direction attribute line indicating 'a=recvonly'.

Precondition:
- A session was established between the served user and a remote user according to the 'basic Call' procedures
- All media streams were previously set to 'inactive'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
CASE A	⬅	UPDATE(**sendonly**)
	➔	200 OK (recvonly)
CASE B	⬅	INVITE(**sendonly**)
	➔	200 OK (recvonly)
	⬅	ACK
User invokes the HOLD service	➔	ReINVITE(**inactive**)
	⬅	200 OK (inactive)
	➔	ACK
User resumes the media session	➔	ReINVITE(**recvonly**)
	⬅	200 OK (sendonly)
	➔	ACK
	Apply post test routine	

TSS ServedUser/WithUPDATE	**TP** CH_U02_014	**HOLD reference** 4.5.2.1	**Selection expression** PICS 4.1/1 AND NOT PICS 4.2/2

Test purpose:

Session hold. UPDATE method is notused. All media streams are affected. The media streams were previously set to recvonly.

Ensure that the IUT to hold an individual media stream of the communication session, sends an ReINVITE request containing an SDP body with an attribute line indicating 'a=inactive'.

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

Comments:

User Equipment	SUT	Test Equipment
	Establish a confirmed session	
User invokes the HOLD service	→	ReINVITE(**sendonly**)
	←	200 OK (recvonly)
	→	ACK
CASE A	←	UPDATE(**inactive**)
	→	200 OK (inactive)
CASE B	←	INVITE(**inactive**)
	→	200 OK (inactive)
	←	ACK
User resumes the media session	→	ReINVITE(**sendonly**)
	←	200 OK (recvonly)
	→	ACK
	Apply post test routine	

TSS ServedUser/WithUPDATE	**TP** CH_U02_015	**HOLD reference** 4.5.2.1	**Selection expression** PICS 4.1/1 AND PICS 4.2/1 AND NOT PICS 4.2/2

Test purpose:

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

Ensure that the IUT to hold all media streams of an early dialogue, sends an UPDATE request containing an SDP body with an attribute line indicating 'a= sendonly'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish an early dialogue	
User invokes the HOLD service	→	UPDATE(**sendonly**)
	←	200 OK (recvonly)
	Apply post test routine	

TSS ServedUser/WithUPDATE	TP CH_U02_016	HOLD reference 4.5.2.1	Selection expression PICS 4.1/1 AND PICS 4.2/1 AND NOT PICS 4.2/2

Test purpose:
Session hold. UPDATE method is used. All media streams are affected. The media streams were previously set to sendrecv.
Ensure that the IUT responds to the hold request of all individual media streams from the remote party of an early dialogue, sends a 200 OK UPDATE response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- Individual media streams

Comments:

User Equipment	SUT	Test Equipment
	Establish an early dialogue	
	←	UPDATE(sendonly)
	→	200 OK (**recvonly**)
	Apply post test routine	

5.3   Network TPs for HOLD

TSS Network	TP CH_N01_001	HOLD reference 4.5.2.1	Selection expression PICS 4.3/1

Test purpose:
Session hold in the early dialogue. The media streams were previously set to sendrecv.
Ensure that the SUT transfers the HOLD request in an early dialogue. The 200 OK response contains an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- The originating party sets the session on HOLD

Comments:

Test Equipment (Gm)	SUT		Test Equipment (Gm)
	Establish an early dialogue		
UPDATE(**sendonly**)	→	→	UPDATE(sendonly)
200 OK (recvonly)	←	←	200 OK (**recvonly**)
	Apply post test routine		

TSS Network	TP CH_N01_002	HOLD reference 4.5.2.1	Selection expression PICS 4.3/1

Test purpose:
Session retrieval in the early dialogue. The media streams were previously set to sendrecv.
Ensure that the SUT transfers the HOLD request in an early dialogue. The 200 OK response contains an SDP body with an attribute line indicating 'a=sendrecv'.

Precondition:
- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly'
- The originating party retrieves the session

Comments:

Test Equipment (Gm)	SUT		Test Equipment (Gm)
	Establish an early dialogue		
UPDATE(**sendonly**)	→	→	UPDATE(sendonly)
200 OK (recvonly)	←	←	200 OK (**recvonly**)
UPDATE(**sendrecv**)	→	→	UPDATE(sendrecv)
200 OK (sendrecv)	←	←	200 OK (**sendrecv**)
	Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_003	4.5.2.1	PICS 4.3/1

Test purpose:

Session set on HOLD in the early dialogue. Retrieval in the confirmed dialogue.

Ensure that the SUT transfers the HOLD request in an early dialogue and the retrieval in the conformed dialogue. The 200 OK response contains an SDP body with an attribute line indicating 'a=sendrecv'.

Precondition:

- An early dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly' in the early dialogue
- The terminating user confirms the dialogue.
- The originating party retrieves the session

Comments:

Test Equipment (Gm)	SUT		Test Equipment (Gm)
	Establish an early dialogue		
UPDATE(**sendonly**)	→	→	UPDATE(sendonly)
200 OK (recvonly)	←	←	200 OK (**recvonly**)
200 OK (recvonly)	←	←	200 OK (recvonly)
ACK	→	→	ACK
CASE A			
INVITE(**sendrecv**)	→		**CASE a**
200 OK (sendrecv)	←	→	INVITE(sendrecv)
ACK	←	←	200 OK (**sendrecv**)
		→	ACK
			CASE b
		→	UPDATE(sendrecv)
		←	200 OK (**sendrecv**)
CASE B			
UPDATE(**sendrecv**)	→		**CASE a**
200 OK (sendrecv)	←	→	UPDATE(sendrecv)
		←	200 OK (**sendrecv**)
			CASE b
		→	INVITE(sendrecv)
		←	200 OK (**sendrecv**)
		→	ACK
	Apply post test routine		

TSS Network	TP CH_N01_004	HOLD reference 4.5.2.1	Selection expression

Test purpose:

Session hold in a confirmed dialogue. The media streams were previously set to sendrecv.
Ensure that the SUT transfers the HOLD request from the originating party in a confirmed dialogue. The 200 OK response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:

- A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendrecv'
- The originating party sets the session on HOLD

Comments:

Test Equipment (Gm)		SUT		Test Equipment (Gm)
		Establish a confirmed dialogue		
CASE A				
INVITE(**sendonly**)	→			**CASE a**
200 OK (recvonly)	←		→	INVITE(sendonly)
ACK	←		←	200 OK (**recvonly**)
			→	ACK
				CASE b
			→	UPDATE(sendonly)
			←	200 OK (**recvonly**)
CASE B				
UPDATE(**sendonly**)	→			**CASE a**
200 OK (recvonly)	←		→	UPDATE(sendonly)
			←	200 OK (**recvonly**)
				CASE b
			→	INVITE(sendonly)
			←	200 OK (**recvonly**)
			→	ACK
		Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_005	4.5.2.1	

Test purpose:
Session hold in a confirmed dialogue. The media streams were previously set to sendrecv.
Ensure that the SUT transfers the HOLD request from the terminating party in a confirmed dialogue. The 200 OK response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
• A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
• The media stream was previously set to 'sendrecv'
• The terminating party sets the session on HOLD

Comments:		
Test Equipment (Gm)	**SUT**	**Test Equipment (Gm)**
	Establish a confirmed dialogue	
CASE A		
CASE a	←	INVITE(**sendonly**)
INVITE(sendonly) ←	→	200 OK (recvonly)
200 OK (**recvonly**) →	←	ACK
ACK ←		
CASE b		
UPDATE(sendonly) ←		
200 OK (**recvonly**) →		
CASE B		
CASE a	←	UPDATE(**sendonly**)
UPDATE(sendonly) ←	→	200 OK (recvonly)
200 OK (**recvonly**) →		
CASE b		
INVITE(sendonly) ←		
200 OK (**recvonly**) →		
ACK ←		
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_006	4.5.2.1	

Test purpose:

Retrieve the session in a confirmed dialogue. The media streams were previously set to sendonly.
Ensure that the SUT is able support the retrieval of a hold session. The session was previous set on HOLD by the originating party. The originating party sends an INVITE or UPDATE request. The 'a' attribute in the SDP is set to 'sendrecv' or this attribute is absent.

Precondition:

- A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly' HOLD requested by the originating party
- The originating party retrieves the held session

Comments:

Test Equipment (Gm)	SUT		Test Equipment (Gm)
	Establish a confirmed dialogue		
	Session on HOLD by the originating party		
CASE A			
INVITE(**sendrecv**)	➜		CASE a
200 OK (sendrecv)	⬅	➜	INVITE(sendrecv)
ACK	⬅	⬅	200 OK (sendrecv)
		➜	ACK
			CASE b
		➜	UPDATE(sendrecv)
		⬅	200 OK (sendrecv)
CASE B			
UPDATE(**sendrecv**)	➜		CASE a
200 OK (sendrecv)	⬅	➜	UPDATE(sendrecv)
		⬅	200 OK (sendrecv)
			CASE b
		➜	INVITE(sendrecv)
		⬅	200 OK (sendrecv)
		➜	ACK
	Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_007	4.5.2.1	

Test purpose:

Retrieve the session in a confirmed dialogue. The media streams were previously set to sendonly.

Ensure that the SUT is able support the retrieval of a hold session. The session was previous set on HOLD by the terminating party. The terminating party sends an INVITE or UPDATE request. The 'a' attribute in the SDP is set to 'sendrecv' or this attribute is absent.

Precondition:

- A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly' HOLD requested by the terminating party
- The terminating party retrieves the held session

Comments:

Test Equipment (Gm)	SUT		Test Equipment (Gm)
	Establish a confirmed dialogue		
	Session on HOLD by the terminating party		
CASE A			
CASE a		←	INVITE(**sendrecv**)
INVITE(sendrecv)	←	→	200 OK (sendrecv)
200 OK (**sendrecv**)	→	←	ACK
ACK	←		
CASE b			
UPDATE(sendrecv)	←		
200 OK (**sendrecv**)	→		
CASE B			
CASE a		←	UPDATE(**sendrecv**)
UPDATE(sendrecv)	←	→	200 OK (sendrecv)
200 OK (**sendrecv**)	→		
CASE b			
INVITE(sendrecv)	←		
200 OK (**sendrecv**)	→		
ACK	←		
	Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_008	4.5.2.1	

Test purpose:
Session hold in a confirmed dialogue. The media streams were previously set to recvonly.
Ensure that the SUT transfers the hold request from the originating party in a confirmed dialogue. The 200 OK response containing an SDP body with an attribute line indicating 'a= inactive.

Precondition:
- A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'recvonly' HOLD requested by the terminating party
- The originating party sets the session on HOLD

Comments:

Test Equipment (Gm)		SUT		Test Equipment (Gm)
		Establish a confirmed dialogue		
		Session on HOLD by the terminating party		
CASE A				
INVITE(**inactive**)	→			CASE a
200 OK (inactive)	←		→	INVITE(inactive)
ACK	←		←	200 OK (inactive)
			→	ACK
				CASE b
			→	UPDATE(inactive)
			←	200 OK (inactive)
CASE B				
UPDATE(inactive)	→			CASE a
200 OK (inactive)	←		→	UPDATE(inactive)
			←	200 OK (inactive)
				CASE b
			→	INVITE(inactive)
			←	200 OK (inactive)
			→	ACK
		Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_009	4.5.2.1	

Test purpose:
Session hold in a confirmed dialogue. The media streams were previously set to recvonly.
The session in a confirmed dialogue is set on HOLD Ensure that the SUT transfers the HOLD request from the terminating party. The 200 OK response containing an SDP body with an attribute line indicating 'a=inactive'.

Precondition:
- A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'recvonly' HOLD requested by the originating party
- The terminating party sets the session on HOLD

Comments:

Test Equipment (Gm)		SUT		Test Equipment (Gm)
		Establish a confirmed dialogue		
		Session on HOLD by the originating party		
CASE A				
CASE a			←	INVITE(**inactive**)
INVITE(inactive)	←		→	200 OK (inactive)
200 OK (**inactive**)	→		←	ACK
ACK	←			
CASE b				
UPDATE(inactive)	←			
200 OK (**inactive**)	→			
CASE B				
CASE a			←	UPDATE(**inactive**)
UPDATE(inactive)	←		→	200 OK (inactive)
200 OK (**inactive**)	→			
CASE b				
INVITE(inactive)	←			
200 OK (**inactive**)	→			
ACK	←			
		Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_010	4.5.2.1	

Test purpose:
Retrieve the session in a confirmed dialogue. The media streams were previously set to inactive.
Ensure that the SUT transfers the RETRIVE request from the terminating party in a confirmed dialogue. The 200 OK response containing an SDP body with an attribute line indicating 'a=sendonly'.

Precondition:
- An confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'recvonly'
- The media stream was previously set to 'inactive'
- The terminating party retrieves the held session

Comments:

Test Equipment (Gm)		SUT		Test Equipment (Gm)
		Establish a confirmed dialogue		
		The originating party sets the session on HOLD		
		The terminating party sets the session on HOLD		
CASE A				
CASE a			←	INVITE(**recvonly**)
INVITE(recvonly)	←		→	200 OK (sendonly)
200 OK (**sendonly**)	→		←	ACK
ACK	←			
CASE b				
UPDATE(recvonly)	←			
200 OK (**sendonly**)	→			
CASE B				
CASE a			←	UPDATE(**recvonly**)
UPDATE(recvonly)	←		→	200 OK (sendonly)
200 OK (**sendonly**)	→			
CASE b				
INVITE(recvonly)	←			
200 OK (**sendonly**)	→			
ACK	←			
		Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_011	4.5.2.1	

Test purpose:
Retrieve the session in a confirmed dialogue. The media streams were previously set to inactive.
Ensure that the SUT transfers the RETRIVE request from the originating party in a confirmed dialogue. The 200 OK response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- An confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'recvonly'
- The media stream was previously set to 'inactive'
- The originating party retrieves the held session

Comments:

Test Equipment (Gm)	SUT		Test Equipment (Gm)

Establish a confirmed dialogue
The originating party sets the session on HOLD
The terminating party sets the session on HOLD

CASE A
INVITE(**sendonly**)	→		CASE a
200 OK (recvonly)	←	→	INVITE(sendonly)
ACK	←	←	200 OK (recvonly)
		→	ACK
			CASE b
		→	UPDATE(sendonly)
		←	200 OK (recvonly)

CASE B
UPDATE(**sendonly**)	→		CASE a
200 OK (recvonly)	←	→	UPDATE(sendonly)
		←	200 OK (recvonly)
			CASE b
		→	INVITE(sendonly)
		←	200 OK (recvonly)
		→	ACK

Apply post test routine

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_012	4.5.2.1	

Test purpose:
Retrieve the session in a confirmed dialogue. The media streams were previously set to inactive.
Ensure that the SUT transfers the RETRIVE request from the terminating party in a confirmed dialogue. The 200 OK response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- An confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly'
- The media stream was previously set to 'inactive'
- The terminating party retrieves the held session

Comments:

Test Equipment (Gm)		SUT		Test Equipment (Gm)
		Establish a confirmed dialogue		
		The terminating party sets the session on HOLD		
		The originating party sets the session on HOLD		
CASE A				
CASE a			←	INVITE(**sendonly**)
INVITE(sendonly)	←		→	200 OK (recvonly)
200 OK (**recvonly**)	→		←	ACK
ACK	←			
CASE b				
UPDATE(sendonly)	←			
200 OK (**recvonly**)	→			
CASE B				
CASE a			←	UPDATE(**sendonly**)
UPDATE(sendonly)	←		→	200 OK (recvonly)
200 OK (**recvonly**)	→			
CASE b				
INVITE(sendonly)	←			
200 OK (**recvonly**)	→			
ACK	←			
		Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_013	4.5.2.1	

Test purpose:

Retrieve the session in a confirmed dialogue. The media streams were previously set to inactive.
Ensure that the SUT transfers the RETRIVE request from the originating party in a confirmed dialogue. The 200 OK response containing an SDP body with an attribute line indicating 'a=recvonly'.

Precondition:
- An confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream was previously set to 'sendonly'
- The media stream was previously set to 'inactive'
- The originating party retrieves the held session

Comments:

Test Equipment (Gm)		SUT		Test Equipment (Gm)

Establish a confirmed dialogue
The terminating party sets the session on HOLD
The originating party sets the session on HOLD

CASE A
INVITE(**recvonly**)   →   CASE a
200 OK (sendonly)   ←   →   INVITE(recvonly)
ACK   ←   ←   200 OK (sendonly)
                                       →   ACK

                                                      CASE b
                                       →   UPDATE(recvonly)
                                       ←   200 OK (sendonly)

CASE B
UPDATE(**recvonly**)   →   CASE a
200 OK (sendonly)   ←   →   UPDATE(recvonly)
                                       ←   200 OK (sendonly)

                                                      CASE b
                                       →   INVITE(recvonly)
                                       ←   200 OK (sendonly)
                                       →   ACK

Apply post test routine

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_014	4.5.2.4	PICS 4.3/3

Test purpose:

The network provides an announcement to the originating user when set the session on HOLD.
Ensure that the SUT provides an announcement to the originating user when setting the session on HOLD.

Precondition:
- A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream is set on HOLD
- The SUT provides an announcement

Comments:

Test Equipment (Gm)	SUT	Test Equipment (Gm)

Establish a confirmed dialogue

CASE A
INVITE(**sendonly**)   →
200 OK (recvonly)   ←
ACK   ←

                       Announcement

CASE B
UPDATE(**sendonly**)   →
200 OK (recvonly)   ←

                       Announcement
                  Apply post test routine

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_015	4.5.2.4	PICS 4.3/3

Test purpose:
The network provides an announcement to the terminating user when set the session on HOLD.
Ensure that the SUT provides an announcement to the terminating user when setting the session on HOLD.

Precondition:
- A confirmed dialogue was established between the served user and a remote user according to the 'basic Call' procedures
- The media stream is set on HOLD
- The SUT provides an announcement

Comments:

Test Equipment (Gm)	SUT	Test Equipment (Gm)
	Establish a confirmed dialogue	
		CASE A
	←	INVITE(**sendonly**)
	→	200 OK (recvonly)
	←	ACK
	Announcement	
		CASE B
	←	UPDATE(**sendonly**)
	→	200 OK (recvonly)
	Announcement	
	Apply post test routine	

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_016	4.5.2.4	PICS 4.3/4

Test purpose:
The SUT lower the bandwidth by setting the b=AS to a small value.
Ensure that the SUT shall for each media stream when the originating user sets the session on HOLD marked "recvonly" lower the bandwidth by setting the "b=AS:" parameter to a small value, e.g. "b=AS:0". The "b=RR:" and "b=RS:" parameters shall be set to values large enough to enable continuation of the RTCP flow, e.g. "b=RR:800" and "b=RS:800".

SIP header values
200 OK (recvonly)
    b=AS:<>
    b=RR:<>

        b=RS:<>

Comments:

Test Equipment (Gm)	SUT		Test Equipment (Gm)
	Establish a confirmed dialogue		
CASE A			
INVITE(**sendonly**)	→		CASE a
200 OK (recvonly)	←	→	INVITE(sendonly)
ACK	←	←	200 OK (recvonly)
		→	ACK
			CASE b
		→	UPDATE(sendonly)
		←	200 OK (recvonly)
CASE B			
UPDATE(**sendonly**)	→		CASE a
200 OK (recvonly)	←	→	UPDATE(sendonly)
		←	200 OK (recvonly)
			CASE b
		→	INVITE(sendonly)
		←	200 OK (recvonly)
		→	ACK
	Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_017	4.5.2.4	PICS 4.3/4

Test purpose:
The SUT lower the bandwidth by setting the b=AS to a small value.
Ensure that the SUT shall for each media stream when the terminating user sets the session on HOLD marked "recvonly" lower the bandwidth by setting the "b=AS:" parameter to a small value, e.g. "b=AS:0". The "b=RR:" and "b=RS:" parameters shall be set to values large enough to enable continuation of the RTCP flow, e.g. "b=RR:800" and "b=RS:800".

SIP header values
200 OK (recvonly)
    b=AS:<>
    b=RR:<>
b=RS:<>

Comments:

      Test Equipment (Gm)   **SUT**   **Test Equipment (Gm)**
                          Establish a confirmed dialogue

CASE A
    CASE a
                         ←   INVITE(**sendonly**)
    INVITE(sendonly)   ←   →   200 OK (recvonly)
    200 OK (**recvonly**)   →   ←   ACK
    ACK   ←

    CASE b
    UPDATE(sendonly)   ←
    200 OK (**recvonly**)   →

CASE B
    CASE a
                          ←   UPDATE(**sendonly**)
    UPDATE(sendonly)   ←   →   200 OK (recvonly)
    200 OK (**recvonly**)   →

    CASE b
    INVITE(sendonly)   ←
    200 OK (**recvonly**)   →
    ACK   ←
                        Apply post test routine

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_018	4.5.2.1	

Test purpose:
The SUT lower the bandwidth by setting the b=AS to a small value.
Ensure that the SUT shall for each media stream when the originating user sets the session on HOLD marked
"inactive" lower the bandwidth by setting the "b=AS:" parameter to a small value, e.g. "b=AS:0". The "b=RR:" and
"b=RS:" parameters shall be set to values large enough to enable continuation of the RTCP flow, e.g. "b=RR:800" and
"b=RS:800".

SIP header values
200 OK (recvonly)
   b=AS:<>
   b=RR:<>
b=RS:<>

Comments:

Test Equipment (Gm)		SUT		Test Equipment (Gm)
		Establish a confirmed dialogue		
		Session on HOLD by the terminating party		
CASE A				
INVITE(**inactive**)	→			CASE a
200 OK (inactive)	←		→	INVITE(inactive)
ACK	←		←	200 OK (inactive)
			→	ACK
				CASE b
			→	UPDATE(inactive)
			←	200 OK (inactive)
CASE B				
UPDATE(inactive)	→			CASE a
200 OK (inactive)	←		→	UPDATE(inactive)
			←	200 OK (inactive)
				CASE b
			→	INVITE(inactive)
			←	200 OK (inactive)
			→	ACK
		Apply post test routine		

TSS	TP	HOLD reference	Selection expression
Network	CH_N01_019	4.5.2.1	

Test purpose:

The SUT lower the bandwidth by setting the b=AS to a small value.

Ensure that the SUT shall for each media stream when the terminating user sets the session on HOLD marked "inactive" lower the bandwidth by setting the "b=AS:" parameter to a small value, e.g. "b=AS:0". The "b=RR:" and "b=RS:" parameters shall be set to values large enough to enable continuation of the RTCP flow, e.g. "b=RR:800" and "b=RS:800".

SIP header values

200 OK (recvonly)
   b=AS:<>
   b=RR:<>
     •   b=RS:<>

Comments:

Test Equipment (Gm)	SUT	Test Equipment (Gm)
	Establish a confirmed dialogue	
	Session on HOLD by the originating party	
CASE A		
CASE a	←	INVITE(**inactive**)
INVITE(inactive) ←	→	200 OK (inactive)
200 OK (**inactive**) →	←	ACK
ACK ←		
CASE b		
UPDATE(inactive) ←		
200 OK (**inactive**) →		
CASE B		
CASE a	←	UPDATE(**inactive**)
UPDATE(inactive) ←	→	200 OK (inactive)
200 OK (**inactive**) →		
CASE b		
INVITE(inactive) ←		
200 OK (**inactive**) →		
ACK ←		
	Apply post test routine	

History

Document history		
V4.1.1	October 2015	Publication