

**Telecommunications and Internet converged Services and  
Protocols for Advanced Networking (TISPAN);  
PSTN/ISDN simulation services;  
Anonymous Communication Rejection (ACR) and  
Communication Barring (CB);  
Part 2: Test Suite Structure and Test Purposes (TSS&TP)**

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Reference

RTS/TISPAN-06056-2-NGN-R2

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Keywords

CB, IMS, testing, TSS&TP

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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 the Anonymous Communication Rejection (ACR) and Communication Barring (CB) simulation services, as identified below:

- Part 1: "Protocol Implementation Conformance Statement (PICS)";
- Part 2: "Test Suite Structure and Test Purposes (TSS&TP)";**
- Part 3: "Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

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# 1 Scope

The present document specifies the test suite structure and test purposes of the Anonymous Communication Rejection (ACR) and Communication Barring (CB) simulation service, based on stage three of the IMS simulation service Anonymous Call Rejection (ACR), Incoming Communication Barring (ICB) and Outgoing Communication Barring (OCB). Within the 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).

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## 2 References

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

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### 2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI TS 183 011: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Anonymous Communication Rejection (ACR) and Communication Barring (CB); Protocol specification".
- [2] ETSI TS 181 002: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Multimedia Telephony with PSTN/ISDN simulation services".
- [3] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [4] ETSI TS 186 017-1: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Anonymous Communication Rejection (ACR) and Communication Barring (CB); Part 1: Protocol Implementation Conformance Statement (PICS)".
- [5] ETSI TS 186 005-1: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Part 1: Protocol Implementation Conformance Statement (PICS)".

## 2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 181 002 [2] and the following apply:

**escaped character:** See RFC 3261 [3].

NOTE: This may contain additional information.

### 3.2 Abbreviations

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

ACR	Anonymous Communication Rejection
AS	Application Server
CB	Communication Barring
CDIV	Communication DIVersion services
CFU	Communication Forwarding Unconditional
IBC	Incoming Communication Barring
ICB	Incoming Communication Barring
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISC	IMS Service Control
NGN	Next Generation Network
NNI	Network to Network Interface
OBC	Outgoing Communication Barring
OCB	Outgoing Communication Barring
OIP	Originating Identification Presentation
PICS	Protocol Implementation Conformance Statement
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TP	Test Purposes
TSS	Test Suite Structure

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## 4 Test Suite Structure (TSS)

ACR-CB			
	ACR_terminating_AS		ACR-CB_N01_xxx
	OBC_originating_AS		ACR-CB_N02_xxx
	IBC_terminating_AS		ACR-CB_N03_xxx
	interaction_OIP		ACR-CB_N04_xxx
	interaction_CDIV		ACR-CB_N05_xxx

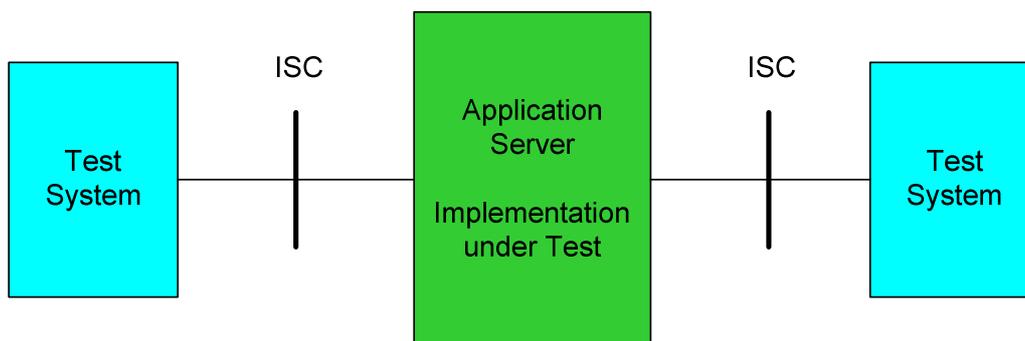
## 4.1 Configuration

The scope of the current specification is to test the signalling and procedural aspects of the stage 3 requirements as described in TS 183 011 [1]. The stage 3 description describes the requirements for several network entities and also the requirements regarding for terminal 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.

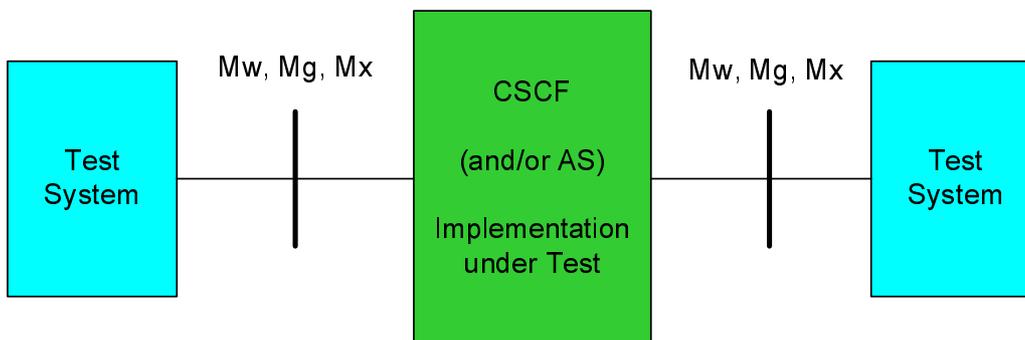
### 4.1.1 Testing of the AS

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



**Figure 1: Applicable interface to test AS functionalities**

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



**Figure 2: Applicable interfaces for tests using a (generic) NNI interface**

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## 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. "ACR-CB"
<iut>	=	type of IUT:	U            User equipment N            Network entity
<group>	=	group	2 digit field representing group reference according to TSS
<nnn>	=	sequential number	(001-999)

### 5.1.2 Test strategy

As the base standard TS 183 011 [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 TS 186 017-1 [4]. The criteria applied include the following:

- whether or not a test case can be built from the TP is not considered.

## 5.2 TPs for Anonymous Communication Rejection (ACR)

### 5.2.1 Action for ACR at the terminating AS

TSS	TP	ACR/CB reference	Selection expression
ACR_CB/ACR_terminating_AS	ACR-CB_N01_001	TS 183 011, clause 4.5.2.6.2 [1]	PICS 1/2
<b>Test purpose</b>			
<i>ACR service rejects an anonymous communication, Privacy value is id.</i>			
Ensure that the ACR service rejects the incoming communication where the request includes the P-Asserted-Identity header AND the Privacy header indicating PRIVACY_VA.			
Ensure that the AS is sending a 433 (Anonymity Disallowed) response when the communication is rejected.			
<b>Preconditions:</b>			
incoming-communication-barring active=true			
conditions: sub element <b>anonymous</b> evaluates to "true"			
actions: sub element <b>allow</b> evaluates to "false"			
<b>Comments:</b>			
<b>Test equipment (ISC)</b>		<b>AS</b>	
INVITE	→		
100 Trying	←		
433 Anonymity Disallowed	←		
ACK	→		

TSS	TP	ACR/CB reference	Selection expression
ACR_CB/ACR_terminating_AS	ACR-CB_N01_002	TS 183 011, clause 4.5.2.6.2 [1]	PICS 1/2 AND PICS 1/4
<p><b>Test purpose</b>  <i>ACR service rejects an anonymous communication, Privacy value is id. An announcement is provided.</i>            Ensure that the ACR service rejects the incoming communication where the request includes the P-Asserted-Identity header AND the Privacy header indicating PRIVACY_VA.            Ensure that the <b>ACR service provides an announcement to the originating user</b> before sending a 433 (Anonymity Disallowed) response when the communication is rejected.</p>			
<p><b>Preconditions:</b>            incoming-communication-barring active=true            conditions: sub element <b>anonymous</b> evaluates to "true"            actions: sub element <b>allow</b> evaluates to "false"</p>			
<p><b>Comments:</b>  <b>Test equipment (ISC)</b> AS</p> <pre> INVITE           → 100 Trying      ←                 ← <b>Announcement</b> 433 Anonymity Disallowed ← ACK             →           </pre>			

TSS	TP	ACR/CB reference	Selection expression
ACR_CB/ACR_terminating_AS	ACR-CB_N01_003	TS 183 011, clause 4.5.2.6.2 [1]	PICS 1/2 AND PICS 1/5
<p><b>Test purpose</b>  <i>ACR service forwards an anonymous communication, Privacy value is id.</i>            Ensure that the ACR service rejects the incoming communication where the request includes the P-Asserted-Identity header AND the Privacy header indicating PRIVACY_VA.            Ensure that the <b>communication is forwarded to voice message service</b> instead of rejecting the communication with a 433 (Anonymity Disallowed) final response.</p>			
<p><b>Preconditions:</b>            incoming-communication-barring active=true            conditions: sub element <b>anonymous</b> evaluates to "true"            actions: sub element <b>allow</b> evaluates to "false"</p>			
<p><b>Comments:</b>  <b>Test equipment (ISC)</b> AS</p> <pre> INVITE           → 100 Trying      ← 200 OK INVITE   ← ACK             →                 ← <b>Voice message</b> BYE             → 200 OK BYE     ←           </pre>			

Values for tests purposes ACR-CB_N01_001 to ACR-CB_N01_003	
PRIVACY_VA_01	id
PRIVACY_VA_02	header
PRIVACY_VA_03	user
PRIVACY_VA_04	critical



## 5.3.2 Actions for ICB at the terminating AS

TSS	TP	ACR/CB reference	Selection expression
ACR-CB/IBC_terminating_AS	ACR-CB_N03_001	TS 183 011 clause 4.5.2.6.1 [1]	PICS 1/2 AND NOT PICS 1/4
<b>Test purpose</b> <i>Incoming communication barring evaluates true.</i> Ensure that an incoming communication is rejected when the evaluation of the barring rule condition evaluates to "true" and the corresponding action allow is set to "false". Ensure that the AS is sending a 603 (Decline) final response when the communication is rejected.			
<b>Preconditions:</b> incoming-communication-barring active=true conditions: sub element evaluates to "true" actions: sub element <b>allow</b> is evaluate to "false"			
<b>Comments:</b> <b>Test equipment (ISC)</b>			
		<b>AS</b>	
INVITE	→		
100 Trying	←		
603 Decline	←		
ACK	→		

TSS	TP	ACR/CB reference	Selection expression
ACR-CB/IBC_terminating_AS	ACR-CB_N03_002	TS 183 011 clause 4.5.2.6.1 [1]	PICS 1/2 AND PICS 1/4
<b>Test purpose</b> <i>Incoming communication barring evaluates true. The service provides an announcement.</i> Ensure that an incoming communication is rejected when the evaluation of the barring rule condition evaluates to "true" and the corresponding action allow is set to "false". Ensure that the IBC service provides an announcement to the originating user before sending a 603 (Decline) final response when the communication is rejected.			
<b>Preconditions:</b> incoming-communication-barring active=true conditions: sub element evaluates to "true" actions: sub element <b>allow</b> is evaluate to "false"			
<b>Comments:</b> <b>Test equipment (ISC)</b>			
		<b>AS</b>	
INVITE	→		
100 Trying	←		
	<b>Announcement</b>		
603 Decline	←		
ACK	→		

## 5.4 Interaction with other simulation services

### 5.4.1 Originating Identification Presentation (OIP)

<b>TSS</b> ACR-CB/interaction_OIP	<b>TP</b> ACR-CB_N04_001	<b>ACR/CB reference</b> TS 183 011, clause 4.6.4 [1]	<b>Selection expression</b> TS 186 005-1 [5] PICS 2/5																																													
<b>Test purpose</b> <i>ACR does not apply to due override category according to the OIP service.</i> Ensure that the ACR service does not apply if the called user has subscribed to the override category according to the OIP service.																																																
<b>Preconditions:</b> Calling user access has been configured to be of "override category" incoming-communication-barring active=true conditions: sub element <b>anonymous</b> evaluates to "true" actions: sub element <b>allow</b> evaluates to "false"																																																
<b>Comments:</b> <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"><b>Test equipment</b></td> <td style="width: 30%; text-align: center;"><b>AS</b></td> <td style="width: 30%;"></td> <td style="width: 10%;"></td> <td style="width: 30%;"><b>Test equipment</b></td> </tr> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td></td> <td></td> <td>INVITE</td> </tr> <tr> <td>100 Trying</td> <td style="text-align: center;">←</td> <td></td> <td></td> <td>100 Trying</td> </tr> <tr> <td>180 Ringing</td> <td style="text-align: center;">←</td> <td></td> <td></td> <td>180 Ringing</td> </tr> <tr> <td>200 OK INVITE</td> <td style="text-align: center;">←</td> <td></td> <td></td> <td>200 OK INVITE</td> </tr> <tr> <td>ACK</td> <td style="text-align: center;">→</td> <td></td> <td></td> <td>ACK</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Communication</td> <td></td> <td></td> </tr> <tr> <td>BYE</td> <td style="text-align: center;">→</td> <td></td> <td style="text-align: center;">→</td> <td>BYE</td> </tr> <tr> <td>200 OK BYE</td> <td style="text-align: center;">←</td> <td></td> <td style="text-align: center;">←</td> <td>200 OK BYE</td> </tr> </table>				<b>Test equipment</b>	<b>AS</b>			<b>Test equipment</b>	INVITE	→			INVITE	100 Trying	←			100 Trying	180 Ringing	←			180 Ringing	200 OK INVITE	←			200 OK INVITE	ACK	→			ACK			Communication			BYE	→		→	BYE	200 OK BYE	←		←	200 OK BYE
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		Communication																																														
BYE	→		→	BYE																																												
200 OK BYE	←		←	200 OK BYE																																												

### 5.4.2 Communication Diversion services (CDIV)

<b>TSS</b> ACR-CB/interaction_CDIV	<b>TP</b> ACR-CB_N05_001	<b>ACR/CB reference</b> TS 183 011, clause 4.6.7 [1]	<b>Selection expression</b>																				
<b>Test purpose</b> <i>ACR has precedence if the served user has activated the communication diversion service.</i> Ensure that the ACR service takes precedence over the Communication Diversion service for the served user if the served user has activated the ACR. Ensure that the ACR service rejects the incoming communication where the request includes the P-Asserted-Identity header AND the Privacy header indicating "id". Ensure that the AS is sending a 433 (Anonymity Disallowed) response when the communication is rejected.																							
<b>Preconditions:</b> Served user of ACR has activated the CFU service incoming-communication-barring active=true conditions: sub element <b>anonymous</b> evaluates to "true" actions: sub element <b>allow</b> evaluates to "false"																							
<b>Comments:</b> <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"><b>Test equipment</b></td> <td style="width: 30%; text-align: center;"><b>AS</b></td> <td style="width: 30%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td></td> <td></td> </tr> <tr> <td>100 Trying</td> <td style="text-align: center;">←</td> <td></td> <td></td> </tr> <tr> <td>433 Anonymity Disallowed</td> <td style="text-align: center;">←</td> <td></td> <td></td> </tr> <tr> <td>ACK</td> <td style="text-align: center;">→</td> <td></td> <td></td> </tr> </table>				<b>Test equipment</b>	<b>AS</b>			INVITE	→			100 Trying	←			433 Anonymity Disallowed	←			ACK	→		
<b>Test equipment</b>	<b>AS</b>																						
INVITE	→																						
100 Trying	←																						
433 Anonymity Disallowed	←																						
ACK	→																						

TSS	TP	ACR/CB reference	Selection expression
ACR-CB/interaction_CDIV	ACR-CB_N05_002	TS 183 011, clause 4.6.7 [1]	
<b>Test purpose</b> <i>ICB has precedence if the served user has activated the communication diversion service.</i> Ensure that the ICB service takes precedence over the Communication Diversion service for the served user if the served user has activated the ICB. Ensure that a incoming communication is rejected when the evaluation of the barring rule condition evaluates to "true" and the corresponding action allow is set to "false". Ensure that the AS is sending a 603 (Decline) final response when the communication is rejected.			
<b>Preconditions:</b> Served user of ICB has activated the CFU service incoming-communication-barring active=true conditions: sub element evaluates to "true" actions: sub element <b>allow</b> evaluates to "false"			
<b>Comments:</b> <b>Test equipment</b>			
		<b>AS</b>	
INVITE	→		
100 Trying	←		
603 Decline	←		
ACK	→		

TSS	TP	ACR/CB reference	Selection expression
ACR-CB/interaction_CDIV	ACR-CB_N05_003	TS 183 011, clause 4.6.7 [1]	
<b>Test purpose</b> <i>OBC has precedence if the served user has activated the communication diversion service.</i> Ensure that the OCB service (towards the diverted-to user) takes precedence over the Communication Diversion service for the served user. Ensure that a communication forwarding is rejected when the evaluation of the barring rule condition evaluates to "true" and the corresponding action allow is set to "false". Ensure that the AS is sending a 603 (Decline) final response when the communication is rejected.			
<b>Preconditions:</b> Served user of OCB has activated the CFU service outgoing-communication-barring active=true conditions: sub element evaluates to "true" actions: sub element <b>allow</b> evaluates to "false"			
<b>Comments:</b> <b>Test equipment</b>			
		<b>AS</b>	
INVITE	→		
100 Trying	←		
603 Decline	←		
ACK	→		

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## Annex A (informative): Change history

Date	WG Doc.	CR	Rev	CAT	Title / Comment	Current Version	New Version
10-06-09	21PTD090	001		F	Update of complete document during STF368's first work session	1.0.0	2.0.1
					Publication	2.0.1	2.1.1

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## History

<b>Document history</b>		
V2.1.1	July 2009	Publication