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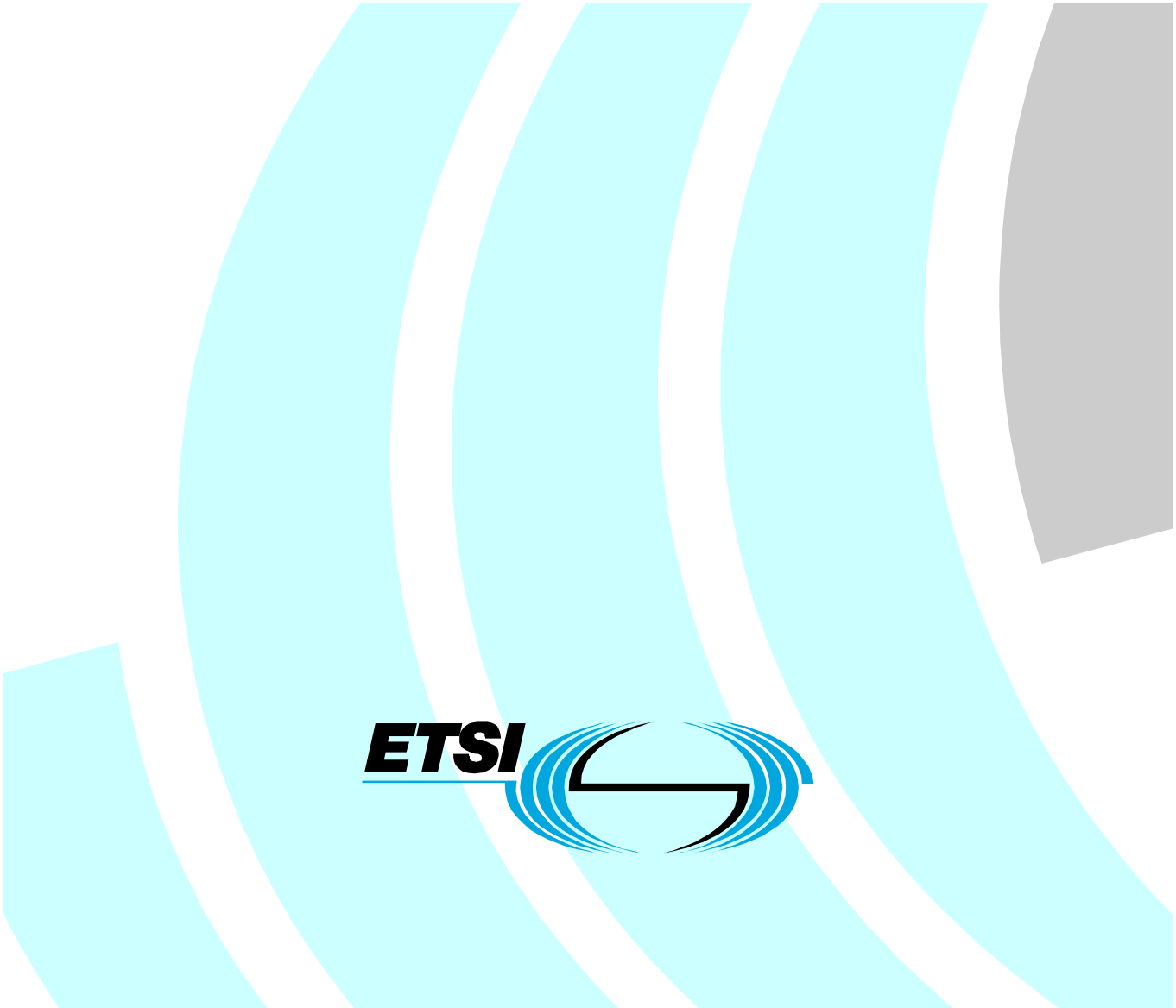
Technical Specification

Methods for Testing and Specification (MTS); Conformance Test Specification for ITU-T H.225.0 (Terminal, Gatekeeper and Gateway); 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 Methods for Testing and Specification (MTS).

The present document is part 2 of a multi-part deliverable covering the H.225.0 protocol for Terminal, Gatekeeper and Gateway as identified below:

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

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

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

1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP) for the H.225.0 protocol for Terminal, Gatekeeper and Gateway.

The objective of the present document is to provide conformance tests that give a greater probability of inter-operability. The TSS&TP specification covers the procedures described in ITU-T Recommendations H.323 [2] and H.225.0 [3].

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [5], ISO/IEC 9646-2 [6] and ISO/IEC 9646-3 [7]) is used as basis for the test methodology.

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 101 804-1: "Methods for Testing and Specification (MTS); Conformance Test Specification for ITU-T H.225.0 (Terminal, Gatekeeper and Gateway); Part 1: Protocol Implementation Conformance Statement (PICS) proforma".

[2] ITU-T Recommendation H.323: "Packet-based multimedia communications systems".

[3] ITU-T Recommendation H.225.0 (2000): "Call signalling protocols and media stream packetization for packet-based multimedia communication systems".

[4] ITU-T Recommendation Q.931: "ISDN user-network interface layer 3 specification for basic call control".

[5] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[6] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".

[7] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ITU-T Recommendation H.323 [2], ITU-T Recommendation H.225.0 [3], ISO/IEC 9646-1 [5], ISO/IEC 9646-2 [6], ISO/IEC 9646-3 [7] and the following apply:

Basic Call Control (BCC): signalling protocol associated with the DSS1 - ISDN Basic Call control procedures of ITU-T Recommendation Q.931 [4]

inopportune: test purpose covering a signalling procedure where an inopportune message (type of message not expected in the IUT current state) is sent to the IUT

syntactically invalid: test purpose covering a signalling procedure where a valid (expected in the current status of the IUT) but not correctly encoded (unknown or incorrect parameter values) message is sent to the IUT, which shall react correctly and eventually reject the message

test purpose: non-formal test description, mainly using text

NOTE: This test description can be used as the basis for a formal test specification (e.g. Abstract Test Suite in TTCN). See ISO/IEC 9646-2 [6].

valid: test purpose covering a signalling procedure where all the messages sent to or received from the IUT are valid (expected in the current status of the IUT) and correctly encoded

3.2 Abbreviations

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

ACF	Admission ConFirm
ADM	ADMission
APDU	Application Protocol Data Unit
ARJ	Admission ReJect
ARQ	Admission ReQuest
ATS	Abstract Test Suite
BCC	Basic Call Control
BCF	Bandwidth ConFirm
BND	Bandwidth
BRJ	Bandwidth ReJect
BRQ	Bandwidth ReQuest
DCF	Disengage ConFirm
DGK	Destination GateKeeper
DIS	DISengage
DRJ	Disengage ReJect
DRQ	Disengage ReQuest
DRQ	Disengage Request
GCF	Gatekeeper ConFirm
GDR	Gatekeeper Discovery Request
GK	GateKeeper
GRJ	Gatekeeper ReJect
GRQ	Gatekeeper ReQuest
GW	GateWay
I	Inopportune
IUT	Implementation Under Test
LAN	Local Area Network
LCF	Location ConFirm
LOC	LOCation
LRJ	Location ReJect
LRQ	Location ReQuest
MCU	Multipoint Control Unit
MSI	Manufacturer Specific Information
PDU	Protocol Data Unit
PER	Packed Encoding Rules
PHA	PHase A: call setup signalling procedures
PHE	PHase E: call termination signalling procedures
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
RAS	Registration, Admission and Status
RCF	Register ConFirm
REG	REGistration
RIP	Request In Progress
RRJ	Register ReJect

RRQ	Register ReQuest
S	Syntactically invalid
STA	STAtus
TCP	Transmission Control Protocol
TE	TErminal
TP	Test Purpose
TSS	Test Suite Structure
TTCN	Testing and Test Control Notation
U0	Null call state
U1	Call Initiated call state
U10	Active call state
U2	Overlap Sending call state
U3	Outgoing Call Proceeding call state
U4	Call Delivered call state
U7	Call Received call state
U9	Incoming Call Proceeding call state
UCF	Unregistration ConFirm
UDP	User Datagram Protocol
URG	UnReGistration
URJ	Unregistration ReJect
URQ	Unregistration ReQuest

4 Architecture and Test Suite Structure (TSS)

4.1 Architecture

The items to be tested can be one of the following: Terminal, Gatekeeper, Gateway or Destination Gatekeeper. They are a part of a Packet Based Network using a LAN with TCP/IP (see figure 1).

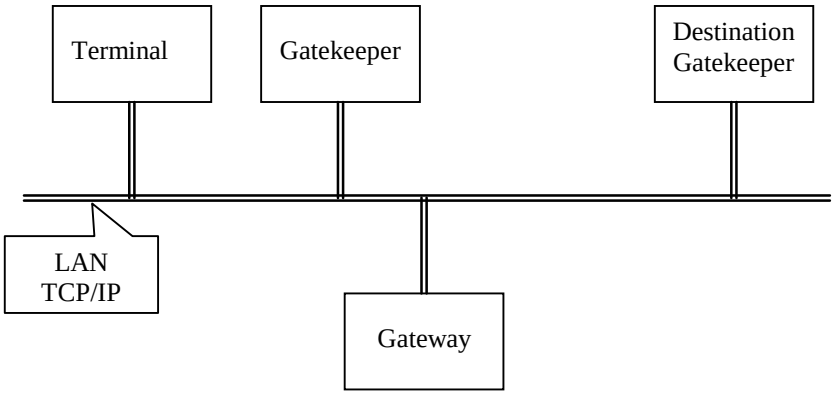

Figure 1: Network architecture

The Implementation Under Test (IUT, see ISO/IEC 9646-1 [5]) for which this Test purpose specification applies consists of the H.225.0 terminal to gatekeeper signalling (RAS) and the H.225.0 call signalling (BCC) (see figure 2).

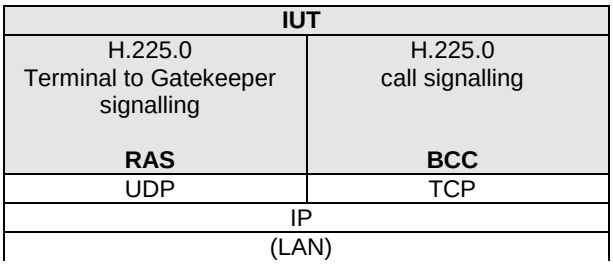

Figure 2: Protocol architecture

4.2 Test Suite Structure (TSS)

The Test Suite Structure follows the network architecture and the protocol architecture. The first level is divided into 2 groups according to the protocol: RAS and BCC. The second level describes the IUT, for RAS either endpoint or gatekeeper, for BCC either endpoint (terminal or gateway), gatekeeper or destination gatekeeper.

For the RAS protocol, each process is included in a corresponding sub-group: Gatekeeper Discovery Request (GDR), Registration (REG), Admission (ADM), LOC (Location), BND (Bandwidth), URG (Unregistration), DIS (Disengage), STA (Status) and Request in Progress (RIP).

For BCC, 2 call phases are considered: phase A and phase E, each one forming a sub-group of BCC. Inopportune behaviour and syntactically invalid messages are tested in the sections I and S which are sub-divided according to the call states.

Protocol	IUT type	Process/ Phase/ Test type	Call state
RAS			
	Endpoint (TE)		
		GDR	
		REG	
		ADM	
		LOC	
		BND	
		URG	
		DIS	
		STA	
		RIP	
	Gatekeeper (GK)		
		GDR	
		REG	
		ADM	
		LOC	
		BND	
		URG	
		DIS	
		STA	
		RIP	
BCC			
	Endpoint (TE)		
		PHA	
		PHE	
		I	
		S	
	Gatekeeper (GK)		
		PHA	
		PHE	
		I	
		S	

Protocol	IUT type	Process/ Phase/ Test type	Call state
	Destination Gatekeeper (DGK)		
		PHA	
		PHE	
		I	
		S	

5 Test Purposes (TP)

5.1 Introduction

5.1.1 TP naming convention

Table 1: TP identifier naming convention scheme

Identifier: **<iut>_<protocol>_<process>_<type>_<nnn>**

<iut>	=	type of IUT	TE = terminal or endpoint
			GK, DGK
<protocol>			RAS or BCC
<process>			if RAS: GDR, REG, ADM, LOC, BND, URG, DIS, STA or RIP if BCC: PHA, PHE, I, S
<state>			U00, U01, U02, U03, U04, U07, U09 or U10
<nn>	=	sequential number	(01-99)

5.1.2 State definitions

5.1.2.1 State definition for BCC

For the BCC protocol, the call states of ITU-T Recommendation Q.931 [4] for the user side are followed.

5.1.3 TP structure

Each TP has been written in a manner, which is consistent with all other TPs. The intention of this is to make the TPs more readable and checkable. A particular structure has been used and this is illustrated in table 2. This table should be read in conjunction with any TP, i.e. use a TP as an example to fully understand the table.

Table 2: Structure of a single TP for H.225.0

TP part	Text	Example
Header	**<Identifier>** tab **<paragraph number in base ETS>**	**TE_RAS_GDR_01** (see table 1) **clause 0.0.0**
Stimulus	Ensure that the IUT <state> <message already sent> <trigger> *see below for message structure* *or* <goal>	 in the idle state having sent a XXX message on receipt of a YYY message to request a ...
Reaction	<action> <conditions> if the action is sending see below for message structure <next action>, etc.	sends, does, etc. ...
Message structure	<message type> message containing a *a)* <message element> *b)* <information element> or <filed code> encoded as *or* including <coding of the field> and *back to a or b,*	GRQ, RRQ, SETUP, FACILITY, CONNECT, etc. RasAddress, callServices, etc. Bearer capability, Facility, etc.
NOTE: Text in italics will not appear in TPs and text between <> is filled in for each TP and may differ from one TP to the next.		

5.1.4 Test strategy

As the base standard ITU-T Recommendation H.225.0 [3] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the corresponding PICS proforma.

The TPs are only based on conformance requirements related to the externally observable behaviour of the IUT, over the TCP or UDP interface, and are limited to conceivable situations to which a real implementation is likely to be faced.

As indicated by the existence of TS 101 804-3 (see foreword), the intention is to derive the test purposes to an abstract test suite in TTCN. Consequently the test purposes are written in a manner, which fit the TTCN methodology, and will consist of the textual documentation of the test cases.

5.2 TPs for H.225.0

All PICS items referred to in this clause are as specified in TS 101 804-1 [1].

Unless specified otherwise, the messages indicated are valid and contain at least the mandatory parameters and possibly optional parameters.

5.2.1 RAS

5.2.1.1 Endpoint (TE)

5.2.1.1.1 Gatekeeper Discovery Request (GDR)

NOTE: When multicast or unicast is not specified, both modes are accepted for GRQ message.

Selection: IUT supports Discovery messages, PICS T_RM1

RAS_TE_GDR_01 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT having sent a valid GRQ message in unicast mode, with the gatekeeper Identifier set to a value other than NULL, on receipt of a GCF message,
considers to have completed the GKDiscovery procedure successfully.

RAS_TE_GDR_02 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT having sent a valid GRQ message in multicast mode to the well-known Discovery Multicast Address and gatekeeperIdentifier missing or set to NULL, on receipt of a GCF message,
considers to have completed its GKDiscovery procedure successfully.

RAS_TE_GDR_03 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT having sent a valid GRQ message in multicast mode to the well-known Discovery Multicast Address and with gatekeeperIdentifier missing or set to NULL, on receipt of multiple GCF message from different gatekeepers,
considers to have completed its GKDiscovery procedure successfully with one of them.

RAS_TE_GDR_04 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT having sent a valid GRQ message, on receipt of a GRJ message with a value in the rejectreason field,
does not consider to have completed its GKDiscovery procedure successfully.

RAS_TE_GDR_05 clauses 7.2.1 [2], 7.8 [3] and 7.19 [3]
Ensure that the IUT having sent a GRQ message, upon the first expiry of default timer for GRQ message,
re-sends the same GRQ message.

Selection: IUT supports GRQ timer, PICS T_TI1

RAS_TE_GDR_06 clauses 7.2.1 [2], 7.8 [3] and 7.19 [3]
Ensure that the IUT having sent a GRQ message for the second time, on receipt of GCF message before the expiry of timer for a GRQ message,
considers to have completed its GKDiscovery procedure successfully.

Selection: IUT supports GRQ timer, PICS T_TI1

RAS_TE_GDR_07 clauses 7.2.1 [2], 7.8 [3] and 7.19 [3]
Ensure that the IUT having already sent a GRQ message for two times, on the expiry of the timer for a GRQ message,
does not re-send the same GRQ message again.

Selection: IUT supports GRQ timer, PICS T_TI1

5.2.1.1.2 Registration phase (REG)

RAS_TE_REG_01 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT before attempting a call,
sends a RRQ message.

RAS_TE_REG_02 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT having sent a valid RRQ message on receipt of a RCF message,
considers to have completed its Registration procedure successfully.

RAS_TE_REG_03 clauses 7.2.1 [2], 7.2.2 [2] and 7.9 [3]
Ensure that the IUT having sent a valid RRQ message on receipt of a RRJ message,
restarts a gatekeeper discovery procedure.

RAS_TE_REG_04 clauses 7.2.2.1 [2] and 7.9 [3]
Ensure that the IUT, having previously registered successfully, to keep the registration alive,
sends a lightweight RRQ with the KeepAlive field set to TRUE.

Selection: IUT supports the use of lightweight RRQ, PICS T_CSC8

RAS_TE_REG_05 clauses 7.2.2 [2], 7.9 [3] and 7.19 [3]
Ensure that the IUT having sent a RRQ message, upon the first expiry of timer for a RRQ message,
re-sends the same RRQ message.

Selection: IUT supports RRQ timer, PICS T_TI2

RAS_TE_REG_06 clauses 7.2.2 [2], 7.9 [3] and 7.19 [3]
Ensure that the IUT having sent a RRQ message for the second time, on receipt of RCF message before the expiry of timer for a RRQ message,
considers to have completed its Registration procedure successfully.

Selection: IUT supports RRQ timer, PICS T_TI2

RAS_TE_REG_07 clauses 7.2.2 [2], 7.9 [3] and 7.19 [3]
Ensure that the IUT having already sent a RRQ message for two times, upon the second expiry of timer for a RRQ message,
does not re-send the same RRQ message again.

Selection: IUT supports RRQ timer, PICS T_TI2

5.2.1.1.3 Admission phase (ADM)

RAS_TE_ADM_01 clauses 7.2.4 [2], 8 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper,
sends a valid ARQ before attempting a call.

RAS_TE_ADM_02 clauses 7.2.4 [2], 8 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper, on receipt of a SETUP message,
sends a valid ARQ.

RAS_TE_ADM_03 clauses 7.2.4 [2], 8 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper having sent an ARQ message in response to a SETUP message, on receipt of an ACF,
proceeds with the call.

RAS_TE_ADM_04 clauses 7.2.4 [2], 8 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper, on receipt of a SETUP message, having sent an ARQ message, on receipt of an ARJ,
releases the call.

RAS_TE_ADM_05 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper on receipt of a SETUP message, having sent an ARQ message, on receipt of an ACF with the irrFrequency,
proceeds with the call and sends an IRR message in the requested frequency.

RAS_TE_ADM_06 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper, on receipt of a SETUP message, having sent an ARQ message, upon the first expiry of default timer for a ARQ message,
re-sends the same ARQ message.

Selection: IUT supports ARQ timer, PICS T_TI4

RAS_TE_ADM_07 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper, on receipt of a SETUP message, having sent an ARQ message for the second time, on receipt of an ACF message before the second expiry of timer for an ARQ message,
proceeds with the call.

Selection: IUT supports ARQ timer, PICS T_TI4

RAS_TE_ADM_08 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper, on receipt of a SETUP message, having already sent an ARQ message for two times, upon the expiry of timer for an ARQ message,
does not re-send the same ARQ message again.

Selection: IUT supports ARQ timer, PICS T_TI4

RAS_TE_ADM_09 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper, on receipt of a SETUP message, having sent an ARQ message on receipt of an ARJ with the field altGKInfo,
sends an ARQ to a gatekeeperIdentifier from altGKInfo received in the ARJ.

RAS_TE_ADM_10 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT, when it is registered with the gatekeeper, on receipt of a SETUP message, having sent an ARQ message on receipt of an ARJ with the field altGKInfo, after sending an ARQ to a gatekeeperIdentifier from altGKInfo received in the ARJ on receipt of an ACF,
proceeds with the call.

5.2.1.1.4 Location phase (LOC)

Selection: PICS T_RM 6

NOTE: The IUT needs to have completed the admission procedure successfully for executing the following test purposes.

RAS_TE_LOC_01 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT having sent a valid LRQ message in unicast mode, on receipt of a LCF message,
considers to have completed the Location procedure successfully.

RAS_TE_LOC_02 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT having sent a valid LRQ message in multicast mode, on receipt of a LCF message,
considers to have completed the Location procedure successfully.

RAS_TE_LOC_03 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT having sent a valid LRQ message, on receipt of a LRJ message,
considers to have not completed the Location procedure successfully.

RAS_TE_LOC_04 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having sent a LRQ message, upon the first expiry of default timer for a LRQ message,
re-sends the same LRQ message.

Selection: IUT supports LRQ timer, PICS T_TI9

RAS_TE_LOC_05 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having sent a LRQ message for the second time, on receipt of LCF message before the second expiry of timer for a LRQ message,
considers to have completed the Location procedure successfully.

Selection: IUT supports LRQ timer, PICS T_TI9

RAS_TE_LOC_06 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having already sent a LRQ message for two times, upon the second expiry of timer for a LRQ message,
does not re-send the same LRQ message again.

Selection: IUT supports LRQ timer, PICS T_TI9

5.2.1.1.5 Bandwidth phase (BND)

RAS_TE_BND_01 clauses 7.2.4 [2] and 7.12 [3]
Ensure that the IUT during a call, having sent a valid BRQ message to raise its allowed bandwidth on receipt of a BCF from the Gatekeeper,
considers that its request has been granted.

RAS_TE_BND_02 clauses 7.2.4 [2], 8.4.1 [2] and 7.12 [3]
Ensure that the IUT during a call having sent a BRQ message to raise its allowed bandwidth on receipt of a BRJ message with the rejectreason insufficient resources and allowed bandwidth,
considers that its request has been rejected.

RAS_TE_BND_03 clauses 7.2.4 [2], 8.4.1 [2], 7.12 [3] and 7.19 [3]
Ensure that the IUT having sent a BRQ message, upon the first expiry of timer for a BRQ message,
re-sends the same BRQ message.

Selection: IUT supports BRQ timer, PICS T_TI5

RAS_TE_BND_04 clauses 7.2.4 [2], 8.4.1 [2], 7.12 [3] and 7.19 [3]
Ensure that the IUT during a call having sent a BRQ message for the second time, on receipt of a BCF message before the second expiry of timer for a BRQ message,
considers that its request has been granted.

Selection: IUT supports BRQ timer, PICS T_TI5

RAS_TE_BND_05 clauses 7.2.4 [2], 8.4.1 [2], 7.12 [3] and 7.19 [3]
Ensure that the IUT during a call having sent a BRQ message for two times, upon the second expiry of timer for a BRQ message,
does not re-send the same BRQ message again.

Selection: IUT supports BRQ timer, PICS T_TI5

RAS_TE_BND_06 clauses 7.2.4 [2] and 7.12 [3]
Ensure that the IUT during a call, on receipt of a valid BRQ message to raise its allowed bandwidth
sends a BCF message.

RAS_TE_BND_07 clauses 7.2.4 [2] and 7.12 [3]
Ensure that the IUT during a call, on receipt of a valid BRQ message to lower its allowed bandwidth
sends a BCF message.

RAS_TE_BND_08 clauses 7.2.4 [2], 8.4.1 [2] and 7.12 [3]
Ensure that the IUT during a call on receipt of a BRQ message to raise its allowed bandwidth, when the requested bandwidth is not available,
sends a BRJ message with the rejectReason insufficient resources and allowed bandwidth.

5.2.1.1.6 Unregistration phase (URG)

NOTE: The IUT needs to have completed the registration procedure successfully for executing the following test purposes.

RAS_TE_URG_01 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT having sent a valid URQ message on receipt of an UCF,
considers to be unregistered.

RAS_TE_URG_02 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT, on receipt of a valid URQ message,
sends an UCF message and considers to be unregistered.

RAS_TE_URG_03 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT which is not registered, on receipt of a valid URQ message,
sends an URJ with the reason for rejection in the reject reason field as notCurrentlyRegistered.

RAS_TE_URG_04 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT, when the call is active, on receipt of a valid URQ message,
sends an URJ with the reason for rejection in the reject reason as callInProgress.

RAS_TE_URG_05 clauses 7.2.2 [2], 7.10 [3] and 7.19 [3]
Ensure that the IUT having sent a valid URQ message, upon the first expiry of the timer for a URQ message,
re-sends the same URQ message.

Selection: IUT supports URQ timer, PICS T_TI3

RAS_TE_URG_06 clauses 7.2.2 [2], 7.10 [3] and 7.19 [3]
Ensure that the IUT having sent a valid URQ message for the second time, on receipt of an UCF message before the expiry of the timer for a URQ message,
considers to be unregistered.

Selection: IUT supports URQ timer, PICS T_TI3

RAS_TE_URG_07 clauses 7.2.2 [2], 7.10 [3] and 7.19 [3]
Ensure that the IUT having sent a valid URQ message for two times, upon the expiry of the timer for a URQ message,
does not re-send the same URQ message again.

Selection: IUT supports URQ timer, PICS T_TI3

5.2.1.1.7 Disengage Phase (DRG)

RAS_TE_DIS_01 clauses 7.2.4 [2], 8.5 [2] and 7.14 [3]
Ensure that the IUT having sent a RELEASE COMPLETE message.
sends a valid DRQ message.

RAS_TE_DIS_02 clauses 7.2.4 [2], 8.5 [2] and 7.14 [3]
Ensure that the IUT on receipt of a RELEASE COMPLETE message.
sends a valid DRQ message.

RAS_TE_DIS_03 clauses 7.2.4 [2], 8.5 [2] and 7.14 [3]
Ensure that the IUT having sent a DRQ message to the Gatekeeper, on receipt of a DCF message
considers the call to be terminated.

RAS_TE_DIS_04 clauses 7.2.4 [2], 8.5 [2] and 7.14 [3]
Ensure that the IUT on receipt of a valid DRQ message,
sends a RELEASE CMPLETE message.

RAS_TE_DIS_05 clauses 7.2.4 [2], 8.5 [2] and 7.14 [3]
Ensure that the IUT on receipt of a valid DRQ message,
sends a DCF.

RAS_TE_DIS_06 clauses 7.2.4 [2], 8.5 [2] and 7.14 [3]
Ensure that the IUT having sent a valid DRQ, on receipt of a DRJ from the Gatekeeper,
does not consider the call to be terminated.

RAS_TE_DIS_07 clauses 7.2.4 [2], 8.5 [2] and 7.19 [3]
Ensure that the IUT having sent a DRQ message, upon the first expiry of timer for a DRQ message,
re-sends the same DRQ message.

Selection: IUT supports DRQ timer, PICS T_TI8

RAS_TE_DIS_08 clauses 7.2.4 [2], 8.5 [2] and 7.19 [3]
Ensure that the IUT during a call having sent a DRQ message for the second time, on receipt of a DCF message before the second expiry of timer for a DRQ message,
considers the call to be terminated.

Selection: IUT supports DRQ timer, PICS T_TI8

RAS_TE_DIS_09 clauses 7.2.4 [2], 8.5 [2] and 7.19 [3]
Ensure that the IUT during a call having sent a DRQ message for two times, upon the second expiry of timer for a DRQ message,
does not re-send the same DRQ message again.

Selection: IUT supports DRQ timer, PICS T_TI8

5.2.1.1.8 Status request procedure (STA)

RAS_TE_STA_01 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT after establishing a call, on receipt of a valid IRQ message with the Call reference value of an active call,
sends an IRR message.

RAS_TE_STA_02 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT on receipt of a valid IRQ message with the Call reference value as NULL,
sends an IRR message for each call the IUT is active.

RAS_TE_STA_03 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT on receipt of a valid IRQ message when there is no active call,
sends an IRR message.

RAS_TE_STA_04 clauses 8.4.2 [2], 7.15 [3] and 7.19 [3]
Ensure that the IUT having sent an IRR message for the first time, upon the expiry of timer for an IRR message
re-sends the same IRR message.

Selection: IUT supports IRR timer, PICS T_TI7

RAS_TE_STA_05 clauses 8.4.2 [2], 7.15 [3] and 7.19 [3]
Ensure that the IUT having sent an IRR message, on receipt of IACK since the willRespondtoIRR was TRUE in RCF/ACF message, before the expiry of the timer for an IRR message,
does not re-send the same IRR message.

Selection: IUT supports IRR timer, PICS T_TI7

RAS_TE_STA_06 clauses 8.4.2 [2], 7.15 [3] and 7.19 [3]
Ensure that the IUT having already sent an IRR message for two times, since the willRespondtoIRR was TRUE in RCF/ACF message
does not re-send the same IRR message again.

Selection: IUT supports IRR timer, PICS T_TI7

RAS_TE_STA_07 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT having sent an IRR message to the Gatekeeper, since the willRespondtoIRR was TRUE in RCF/ACF message, on receipt of an INAK from the Gatekeeper
does not re-send the IRR message.

5.2.1.1.9 Request In Progress (RIP)

Selection: IUT supports Ras timers and RIP messages, PICS T_RM12

RAS_TE_RIP_01 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid GRQ message in multicast mode, on receipt of a RIP message
restarts the timer and counter for the GRQ message.

RAS_TE_RIP_02 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid GRQ message in multicast mode and then received a RIP message, upon the expiry of the RIP delay,
re-sends the GRQ message and restarts the timer.

RAS_TE_RIP_03 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid GRQ message in multicast mode and then received a RIP message, on receipt of the GCF message before the expiry of the RIP delay,
considers to have completed the GKDiscovery procedure successfully.

RAS_TE_RIP_04 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid RRQ message, on receipt of a RIP message
restarts the timer and counter for the RRQ message.

RAS_TE_RIP_05 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid RRQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the RRQ message and restarts the timer.

RAS_TE_RIP_06 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid RRQ message and then received a RIP message, on receipt of the RCF message before the expiry of the RIP delay,
considers to have completed the Registration procedure successfully.

RAS_TE_RIP_07 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid ARQ message, on receipt of a RIP message
restarts the timer and counter for the ARQ message.

RAS_TE_RIP_08 clauses 7.2 [2] clause 7.19 [3]
Ensure that the IUT having sent a valid ARQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the ARQ message and restarts the timer.

RAS_TE_RIP_09 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid ARQ message and then received a RIP message, on receipt of the ACF message before the expiry of the RIP delay,
proceeds with the call.

RAS_TE_RIP_10 clauses 7.2 [2] and 7.19 [3]
Selection: PICS T_RM 6
Ensure that the IUT having sent a valid LRQ message, on receipt of a RIP message
restarts the timer and counter for the LRQ message.

Selection: IUT supports sending of LRQ messages, PICS T_RM6.1

RAS_TE_RIP_11 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid LRQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the LRQ message and restarts the timer.

Selection: IUT supports sending of LRQ messages, PICS T_RM6.1

RAS_TE_RIP_12 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid LRQ message and then received a RIP message, on receipt of the LCF message before the expiry of the RIP delay,
proceeds with the call.

RAS_TE_RIP_13 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid BRQ message, on receipt of a RIP message
restarts the timer and counter for the BRQ message.

RAS_TE_RIP_14 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid BRQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the BRQ message and restarts the timer.

RAS_TE_RIP_15 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid BRQ message and then received a RIP message, on receipt of the BCF message before the expiry of the RIP delay,
considers that its request has been granted.

RAS_TE_RIP_16 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid URQ message, on receipt of a RIP message
restarts the timer and counter for the URQ message.

RAS_TE_RIP_17 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid URQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the URQ message and restarts the timer.

RAS_TE_RIP_18 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid URQ message and then received a RIP message, on receipt of the UCF message before the expiry of the RIP delay,
considers to be unregistered.

RAS_TE_RIP_19 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid DRQ message, on receipt of a RIP message
restarts the timer and counter for the DRQ message.

RAS_TE_RIP_20 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid DRQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the DRQ message and restarts the timer.

RAS_TE_RIP_21 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid DRQ message and then received a RIP message, on receipt of the DCF message before the expiry of the RIP delay,
terminates the call.

RAS_TE_RIP_22 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid IRR message, on receipt of a RIP message
restarts the timer and counter for the IRR message.

RAS_TE_RIP_23 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid IRR message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the IRR message and restarts the timer.

RAS_TE_RIP_24 clauses 7.2 [2] and 7.19 [3]
Ensure that the IUT having sent a valid IRR message and then received a RIP message, on receipt of the INACK message before the expiry of the RIP delay,
proceeds with the call.

5.2.1.2 Gatekeeper

5.2.1.2.1 Gatekeeper Discovery Request (GDR)

RAS_GK_GDR_01 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT on receipt of a valid GRQ message in unicast mode, with the gatekeeper Identifier set to a value other than NULL, when it wants this endpoint to register with it,
sends a GCF message.

RAS_GK_GDR_02 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT on receipt of a valid GRQ message in multicast mode to the well-known Discovery Multicast Address and gatekeeperIdentifier missing or set to NULL, when it wants this endpoint to register with it,
sends a GCF message.

RAS_GK_GDR_03 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT on receipt of a GRQ message in unicast mode, when it does not want this endpoint to register with it,
sends a GRJ message.

RAS_GK_GDR_04 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT on receipt of a GRQ message in multicast mode, when it does not want this endpoint to register with it,
sends no answer.

RAS_GK_GDR_05 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT on receipt of a GRQ message concerning an endpoint having already discovered it,
sends a GCF message.

RAS_GK_GDR_06 clauses 7.2.1 [2] and 7.8 [3]
Ensure that the IUT on receipt of a GRQ message concerning an endpoint having already registered,
sends a GCF message.

5.2.1.2.2 Registration phase (REG)

RAS_GK_REG_01 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of a valid RRQ message, when it wants this endpoint to register with it,
sends a RCF message.

RAS_GK_REG_02 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of a valid RRQ message, when it does not want this endpoint to register with it,
sends a RRJ message.

RAS_GK_REG_03 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of a RRQ message with the discovery element set to TRUE immediately after completing GKDiscovery procedure,
sends a RCF message.

RAS_GK_REG_04 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of a RRQ message,
sends a RCF message without the timetoLive value indicating that the Gatekeeper does not support KeepAlive mechanism.

Selection: IUT does not support use of lightweight RRQ, PICS NOT G_CSC 8.1

RAS_GK_REG_05 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of a RRQ message,
sends a RCF message with the timetoLive value indicating that the Gatekeeper supports KeepAlive mechanism.

Selection: IUT supports use of lightweight RRQ, PICS G_CSC 8.1

RAS_GK_REG_06 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of a RRQ message from the Endpoint which is already registered to this gatekeeper with the KeepAlive element set to TRUE before the expiry of the timetolive timer,
sends a RCF message.

Selection: IUT supports use of lightweight RRQ, PICS G_CSC 8.1

RAS_GK_REG_07 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT, which has not already discovered the Gatekeeper, on receipt of a RRQ message with the discovery element set to FALSE,
sends a RRJ message with the reason code of discoveryRequired.

RAS_GK_REG_08 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT, on receipt of a lightweight RRQ message before the expiration of the time-to live,
reset the time to live timer.

Selection: IUT supports use of lightweight RRQ, PICS G_CSC 8.1

RAS_GK_REG_09 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT, on receipt of a full RRQ message after the expiration of the time-to live,
sends a RCF message.

Selection: IUT supports use of lightweight RRQ, PICS G_CSC 8.1

RAS_GK_REG_10 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of a lightweight RRQ message after the time-to-live has expired,
sends a RRJ message with the reason code fullRegistrationRequired or discoveryRequired.

RAS_GK_REG_11 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the IUT on receipt of an ARQ message after the time-to-live has expired,
sends an ARJ message with the reject reason callerNotRegistered or CalledPartyNotRegistered.

Selection: IUT supports use of lightweight RRQ, PICS G_CSC 8.1

RAS_GK_REG_12 clauses 7.2.2 [2] and 7.9 [3]
Ensure that the on receipt of a RRQ message with the alias address of an endpoint which is already registered with a different transport address,
sends a RRJ message.

5.2.1.2.3 Admission phase (ADM)

RAS_GK_ADM_01 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT on receipt of a valid ARQ message, concerning an endpoint registered to it,
sends an ACF message.

RAS_GK_ADM_02 clauses 7.2.4 [2] and 7.11 [3]
Ensure that the IUT on receipt of a valid ARQ message, concerning an endpoint that is not registered to it,
sends an ARJ message.

5.2.1.2.4 Location phase (LOC)

RAS_GK_LOC_01 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT on receipt of a valid LRQ message in unicast mode concerning an endpoint registered to it,
sends to the replyAddress a LCF message including call signalling channel and RAS channel addresses.

RAS_GK_LOC_02 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT on receipt of a valid LRQ message in multicast mode concerning an endpoint registered to it,
sends to the replyAddress a LCF message including call signalling channel and RAS channel addresses.

RAS_GK_LOC_03 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT on receipt of a valid LRQ message in unicast mode with which the requested endpoint is not registered,
sends a LRJ message.

RAS_GK_LOC_04 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT on receipt of a valid LRQ message in multicast mode with which the requested endpoint is not registered,
sends no answer.

RAS_GK_LOC_05 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT having sent a valid LRQ message, on receipt of a LCF message,
considers to have completed the Location procedure successfully.

RAS_GK_LOC_06 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having sent a LRQ message, upon the first expiry of default timer for a LRQ message,
re-sends the same LRQ message.

Selection: IUT supports LRQ timer, PICS G_TI9

RAS_GK_LOC_07 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Selection: PICS G_TI 9
Ensure that the IUT having sent a LRQ message for the second time, on receipt of LCF message before the second expiry of timer for a LRQ message,
considers to have completed the Location procedure successfully.

Selection: IUT supports LRQ timer, PICS G_TI9

RAS_GK_LOC_08 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Selection: PICS G_TI 9
Ensure that the IUT having already sent a LRQ message for two times, upon the second expiry of timer for a LRQ message,
does not re-send the same LRQ message again.

Selection: IUT supports LRQ timer, PICS G_TI9

RAS_GK_LOC_09 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT having sent a valid LRQ message, on receipt of a LRJ message,
does not consider to have completed the Location procedure successfully.

5.2.1.2.5 Bandwidth phase (BND)

RAS_GK_BND_01 clauses 7.2.4 [2], 8.4.1 [2] and 7.12 [3]
Ensure that the IUT on receipt of a valid BRQ message to raise its allowed bandwidth when the request is acceptable,
sends a BCF message.

RAS_GK_BND_02 clauses 7.2.4 [2], 8.4.1 [2] and 7.12 [3]
Ensure that the IUT on receipt of a valid BRQ message, when the request is not acceptable
sends a BRJ.

RAS_GK_BND_03 clauses 7.2.3 [2], 8.4.1 [2] and 7.13 [3]
Ensure that the IUT having sent a valid BRQ message, on receipt of a BCF message,
considers that its request has been granted.

RAS_GK_BND_04 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having sent a BRQ message, upon the first expiry of default timer for a BRQ message,
re-sends the same BRQ message.

Selection: IUT supports BRQ timer, PICS G_TI5

RAS_GK_BND_05 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having sent a BRQ message for the second time, on receipt of BCF message before the second expiry of timer for a BRQ message,
considers that its request has been granted.

Selection: IUT supports BRQ timer, PICS G_TI5

RAS_GK_BND_06 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having already sent a BRQ message for two times, upon the second expiry of timer for a BRQ message,
does not re-send the same BRQ message again.

Selection: IUT supports BRQ timer, PICS G_TI5

RAS_GK_BND_07 clauses 7.2.3 [2] and 7.13 [3]
Ensure that the IUT having sent a valid BRQ message, on receipt of a BRJ message,
considers that its request has been rejected.

5.2.1.2.6 Unregistration phase (URG)

RAS_GK_URG_01 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT on receipt of a valid URQ message,
sends an UCF.

RAS_GK_URG_02 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT on receipt of a URQ message from an Endpoint which is not registered,
sends an URJ.

RAS_GK_URG_03 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT on receipt of an URQ message when the call is active,
sends a URJ with the reason for rejection in the reject reason as callInProgress.

RAS_GK_URG_04 clauses 7.2.2 [2] and 7.10 [3]
Ensure that the IUT having sent an URQ message to the Endpoint on receipt of a UCF message,
considers that the terminal is not registered any more.

RAS_GK_URG_05 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having sent a URQ message, upon the first expiry of default timer for a URQ message,
re-sends the same URQ message.

Selection: IUT supports URQ timer, PICS G_TI3

RAS_GK_URG_06 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Selection: PICS G_TI 3
Ensure that the IUT having sent a URQ message for the second time, on receipt of UCF message before the second expiry of timer for a URQ message,
considers that the terminal is not registered any more.

Selection: IUT supports URQ timer, PICS G_TI3

RAS_GK_URG_07 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having already sent a URQ message for two times, upon the second expiry of timer for a URQ message,
does not resend the same URQ message again.

Selection: IUT supports URQ timer, PICS G_TI3

5.2.1.2.7 Disengage phase (DRQ)

RAS_GK_DIS_01 clauses 7.2.4 [2] and 7.14 [3]
Ensure that the IUT on receipt of a valid DRQ message for an admitted call,
sends a DCF message.

RAS_GK_DIS_02 clauses 7.2.4 [2] and 7.14 [3]
Ensure that the IUT, on receipt of a valid DRQ message for a terminal, which is unregistered,
sends a DRJ message.

RAS_GK_DIS_03 clauses 7.2.4 [2] and 7.14 [3]
Ensure that the IUT having sent an DRQ message, on receipt of a DCF message,
terminates the call.

RAS_GK_DIS_04 clauses 7.2.4 [2], 7.14 [3] and 7.19 [3]
Ensure that the IUT having sent a DRQ message, upon the first expiry of default timer for a DRQ message,
re-sends the same DRQ message.

Selection: IUT supports DRQ timer, PICS G_TI8

RAS_GK_DIS_05 clauses 7.2.4 [2], 7.14 [3] and 7.19 [3]
Ensure that the IUT having sent a DRQ message for the second time, on receipt of DCF message before the second expiry of timer for a DRQ message,
terminates the call.

Selection: IUT supports DRQ timer, PICS G_TI8

RAS_GK_DIS_06 clauses 7.2.3 [2], 7.13 [3] and 7.19 [3]
Ensure that the IUT having already sent a DRQ message for two times, upon the second expiry of timer for a DRQ message,
does not re-send the same DRQ message again.

Selection: IUT supports DRQ timer, PICS G_TI8

5.2.1.2.8 Status request procedure (STA)

RAS_GK_STA_01 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT having sent a valid IRQ message,
accepts an IRR message.

RAS_GK_STA_02 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT on receipt of an unsolicited IRR message with needResponse field set to TRUE,
sends an IACK message depending on the willRespondtoIRR in RCF/ACF message.

RAS_GK_STA_03 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT on receipt of an unsolicited IRR message with needResponse field set to FALSE,
sends no response.

RAS_GK_STA_04 clauses 8.4.2 [2] and 7.15 [3]
Ensure that the IUT on receipt of an IRR message from a Terminal which is not registered,
sends an INAK with nakReason as notRegistered.

5.2.1.2.9 Request In Progress (RIP)

Selection: IUT supports Ras timers and RIP messages, PICS G_RM12

RAS_GK_RIP_01 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid BRQ message, on receipt of a RIP message
restarts the timer and counter for the BRQ message.

RAS_GK_RIP_02 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid BRQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the BRQ message and restarts the timer.

RAS_GK_RIP_03 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid BRQ message and then received a RIP message, on receipt of the BCF message before the expiry of the RIP delay,
proceeds with the call.

RAS_GK_RIP_04 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid URQ message, on receipt of a RIP message
restarts the timer and counter for the URQ message.

RAS_GK_RIP_05 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid URQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the URQ message and restarts the timer.

RAS_GK_RIP_06 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid URQ message and then received a RIP message, on receipt of the UCF message before the expiry of the RIP delay,
considers that the terminal is not registered any more.

RAS_GK_RIP_07 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid DRQ message, on receipt of a RIP message
restarts the timer and counter for the DRQ message.

RAS_GK_RIP_08 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid DRQ message and then received a RIP message, upon the expiry of the RIP delay,
re-sends the DRQ message and restarts the timer.

RAS_GK_RIP_09 clauses 7.2 [2**] and 7.19 [**3**]**
Ensure that the IUT having sent a valid DRQ message and then received a RIP message, on receipt of the DCF message before the expiry of the RIP delay,
terminates the call.

5.2.2 BCC

5.2.2.1 Endpoint (TE)

5.2.2.1.1 PHA - Call setup

BCC_TE_PHA_01 clause 8.1 [2**], clauses 7.1 and 7.3.10 [**3**]**
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the sourceAddress field with an E.164 type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_02 clause 8.1 [2**], clauses 7.1 and 7.3.10 [**3**]**
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the sourceAddress field with a H323-ID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_03 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the sourceAddress field with a URL-ID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_04 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the sourceAddress field with a transportID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_05 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the sourceAddress field with an email-ID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_06 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the sourceAddress field with a partyNumber type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_07 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the destinationAddress field with an E.164 type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_08 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the destinationAddress field with a H323-ID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_09 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the destinationAddress field with a URL-ID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_10 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the destinationAddress field with a transportID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_11 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the destinationAddress field with an email-ID type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_12 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP containing a User-to-user information element including the destinationAddress field with a partyNumber type AliasAddress,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_13 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing the called party number information element including a valid Numbering plan identification other than '1001',
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_PHA_14 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, to establish a call,
sends a SETUP message and enters the Call Initiated call state U1.

BCC_TE_PHA_15 clauses 8.1 [2] and 7.3.2 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING,
sends no message and enters the Outgoing Call Proceeding call state U3.

BCC_TE_PHA_16 clauses 8.1 [2] and 7.3.1 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message,
sends no message and enters the Call delivered call state U4.

BCC_TE_PHA_17 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CONNECT message,
sends no message and enters the Active call state U10.

BCC_TE_PHA_18 clauses 8.1 [2] and 7.5 [3]
Ensure that the IUT in the Call Initiated call state U1, on the first expiry of the timer T303,
re-sends the SETUP message and remains in the Call Initiated call state U1.

BCC_TE_PHA_19 clauses 8.1 [2] and 7.5 [3]
Ensure that the IUT in the Call Initiated call state U1, on the second expiry of the timer T303,
sends a RELEASE COMPLETE message containing either a Cause information element indicating the cause value 102 "recovery on timer expiry"; or a User-to-user information element including the reason field indicating why the call was released and enters the Null call state U0.

BCC_TE_PHA_20 clauses 8.1 [2] and 7.3.2 [3]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CALL PROCEEDING message,
sends no message and enters the Outgoing Call Proceeding call state U3.

Selection: Supports Overlap Sending PICS: T_CSP 10.

BCC_TE_PHA_21 clauses 8.1 [2] and 7.3.1 [3]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of an ALERTING message,
sends no message and enters the Call Delivered call state U4.

Selection: Supports Overlap Sending PICS: T_CSP 10.

BCC_TE_PHA_22 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CONNECT message,
sends no message and enters the Active call state U10.

Selection: Supports Overlap Sending PICS: T_CSP 10.

BCC_TE_PHA_23 clauses 8.1 [2] and 7.3.1 [3]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message,
sends no message and enters the Call delivered call state U4.

BCC_TE_PHA_24 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a CONNECT message,
sends no message and enters the Active call state U10.

BCC_TE_PHA_25 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Call delivered call state U4, on receipt of a CONNECT message,
sends no message and enters the Active call state U10.

BCC_TE_PHA_26 clauses 8.1 [2] and 7.5 [3]
Ensure that the IUT in the Call Delivered call state U4, on the expiry of the timer T301,
sends a RELEASE COMPLETE message containing either a Cause information element indicating the cause value 102 "recovery on timer expiry"; or a User-to-user information element including the reason field indicating why the call was released and enters the Null call state U0.

BCC_TE_PHA_27 table 4, clauses 7.3.12 and 7.3.13 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Call Initiated call state and remains in the Call Initiated call state U1.

BCC_TE_PHA_28 table 4, clauses 7.3.12 and 7.3.13 [3]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Overlap Sending call state and remains in the Overlap Sending call state U2.

Selection: Supports Overlap Sending PICS: T_CSP 10.

BCC_TE_PHA_29 table 4, clauses 7.3.12 and 7.3.13 [3]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Outgoing Call Proceeding call state and remains in the Outgoing Call Proceeding call state U3.

BCC_TE_PHA_30 table 4, clauses 7.3.12 and 7.3.13 [3]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Call Delivered call state and remains in the Call Delivered call state U4.

BCC_TE_PHA_31 table 4, clauses 7.3.12 and 7.3.13 [3]
Ensure that the IUT in the Call Received call state U7, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Call Received call state and remains in the Call Received call state U7.

BCC_TE_PHA_32 table 4, clauses 7.3.12 and 7.3.13 [3]
Ensure that the IUT in the Active call state U10, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Active call state and remains in the Active call state U10.

5.2.2.1.2 PHE - Call termination

BCC_TE_PHE_01 clauses 8.5 [2] and 7.1 [3]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0.

BCC_TE_PHE_02 clauses 8.5 [2] and 7.1 [3]
Ensure that the IUT in the Active call state U10, to release the call,
sends a RELEASE COMPLETE message, closes call signalling channel and enters the Null call state U0.

5.2.2.1.3 Inopportune behaviour

5.2.2.1.3.1 Null call state U0

BCC_TE_I_U00_01 clause 5.8.4 [4]
Ensure that the IUT in the Null call state U0, on receipt of a message containing an unknown message type information element,
sends a STATUS message and remains in the Null call state U0.

BCC_TE_I_U00_02 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Null call state U0, on receipt of a RESUME message (out of the context of the base specification),
sends a STATUS message and remains in the Null call state U0.

BCC_TE_I_U00_03 clauses 5.8.3.2 h) and 5.8.10 [4]
Ensure that the IUT in the Null call state U0, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Null call state and remains in the Null call state U0.

BCC_TE_I_U00_04 clauses 5.8.3.2 g) and 5.8.11 [4]
Ensure that the IUT in the Null call state U0, on receipt of a STATUS message containing a Call state information element indicating a call state other than the Null call state,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 101 "message not compatible with call state" and remains in the Null call state U0.

BCC_TE_I_U00_05 clauses 5.8.3.2 g) and 5.8.11 [4]
Ensure that the IUT in the Null call state U0, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
sends no message and remains in the Null call state U0.

5.2.2.1.3.2 Call Initiated call state U1

BCC_TE_I_U01_01 clause 5.8.4 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U01_02 clause 5.8.11 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U01_03 clause 5.8.4 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a message containing an unknown message type information element,
sends a STATUS message and remains in the Call Initiated call state U1.

BCC_TE_I_U01_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a RELEASE message (out of the context of the base specification),
sends a STATUS message and remains in the Call Initiated call state U1.

5.2.2.1.3.3 Overlap Sending call state U2

Selection: Supports Overlap Sending PICS: T_CSP 10.

BCC_TE_I_U02_01 clause 5.8.4 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U02_02 clause 5.8.11 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U02_03 clause 5.8.4 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a message containing an unknown message type information element,
sends a STATUS message and remains in the Overlap Sending call state U2.

BCC_TE_I_U02_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a RELEASE message (out of the context of the base specification),
sends a STATUS message and remains in the Overlap Sending call state U2.

5.2.2.1.3.4 Outgoing Call Proceeding call state U3

BCC_TE_I_U03_01 clause 5.8.4 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U03_02 clause 5.8.11 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U03_03 clause 5.8.4 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a message containing an unknown message type information element,
sends a STATUS message and remains in the Outgoing Call Proceeding call state U3.

BCC_TE_I_U03_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a DISCONNECT message (out of the context of the base specification),
sends a STATUS message and remains in the Outgoing Call Proceeding call state U3.

5.2.2.1.3.5 Call Delivered call state U4

BCC_TE_I_U04_01 clause 5.8.4 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U04_02 clause 5.8.11 [5]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U04_03 clause 5.8.4 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a message containing an unknown message type information element,
sends a STATUS message and remains in the Call Delivered call state U4.

BCC_TE_I_U04_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a DISCONNECT message (out of the context of the base specification),
sends a STATUS message and remains in the Call Delivered call state U4.

5.2.2.1.3.6 Call Received call state U7

BCC_TE_I_U07_01 clause 5.8.4 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U07_02 clause 5.8.11 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U07_03 clause 5.8.4 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a message containing an unknown message type information element,
sends a STATUS message and remains in the Call Received call state U7.

BCC_TE_I_U07_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE message (out of the context of the base specification),
sends a STATUS message and remains in the Call Received call state U7.

5.2.2.1.3.7 Active call state U10

BCC_TE_I_U10_01 clause 5.8.4 [4]
Ensure that the IUT in the Active call state U10, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0.

BCC_TE_I_U10_02 clause 5.8.4 [4]
Ensure that the IUT in the Active call state U10, on receipt of a message containing an unknown message type information element,
sends a STATUS message and remains in the Active call state U10.

BCC_TE_I_U10_03 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Active call state U10, on receipt of a CONNECT ACKNOWLEDGE message (out of the context of the base specification),
sends a STATUS message and remains in the Active call state U10.

5.2.2.1.4 Syntactically invalid messages

5.2.2.1.4.1 Null call state U0

BCC_TE_S_U00_01 clause 5.8.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Null call state U0.

BCC_TE_S_U00_02 clause 5.8.2 [4]
Ensure that the IUT in the Null call state U0, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Null call state U0.

BCC_TE_S_U00_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Null call state U0.

BCC_TE_S_U00_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Null call state U0.

BCC_TE_S_U00_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing the dummy call reference,
sends no message and remains in the Null call state U0.

BCC_TE_S_U00_06 clause 5.8.3.2 d) [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing a call reference flag bit set to 1,
sends no message and remains in the Null call state U0.

BCC_TE_S_U00_07 clause 5.8.6.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and remains in the Null call state U0.

BCC_TE_S_U00_08 clause 5.8.6.2 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and remains in the Null call state U0.

BCC_TE_S_U00_09 clause 5.8.7.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an information element, which is not within the context of the base specification,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

BCC_TE_S_U00_10 clause 5.8.7.2 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing a non-mandatory information element with content error,
sends any of a CALL PROCEEDING, ALERTING or CONNECT message and enters the relevant call state Incoming Call Proceeding U9, Call Received U7 or Active call state U10.

5.2.2.1.4.2 Call Initiated call state U1

BCC_TE_S_U01_01 clause 5.8.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a SETUP ACKNOWLEDGE message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Call Initiated call state U1.

BCC_TE_S_U01_02 clause 5.8.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Call Initiated call state U1.

BCC_TE_S_U01_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Call Initiated call state U1.

BCC_TE_S_U01_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Call Initiated call state U1.

BCC_TE_S_U01_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing the dummy call reference,
sends no message and remains in the Call Initiated call state U1.

BCC_TE_S_U01_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a SETUP ACKNOWLEDGE message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and enters the Null call state U0.

BCC_TE_S_U01_07 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and enters the Null call state U0.

BCC_TE_S_U01_08 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and enters the Null call state U0.

BCC_TE_S_U01_09 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a SETUP ACKNOWLEDGE message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and enters the Null call state U0.

BCC_TE_S_U01_10 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and enters the Null call state U0.

BCC_TE_S_U01_11 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and enters the Null call state U0.

BCC_TE_S_U01_12 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a SETUP ACKNOWLEDGE message containing an information element, which is not within the context of the base specification,
sends no message and enters the Overlap Sending call state U2.

BCC_TE_S_U01_13 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Outgoing Call Proceeding call state U3.

BCC_TE_S_U01_14 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Call Delivered call state U4.

BCC_TE_S_U01_15 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a SETUP ACKNOWLEDGE message containing a non-mandatory information element with content error,
sends no message and enters the Overlap Sending call state U2.

BCC_TE_S_U01_16 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing a non-mandatory information element with content error,
sends no message and enters the Outgoing Call Proceeding call state U3.

BCC_TE_S_U01_17 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing a non-mandatory information element with content error,
sends no message and enters the Call Delivered call state U4.

5.2.2.1.4.3 Overlap Sending call state U2

BCC_TE_S_U02_01 clause 5.8.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CALL PROCEEDING message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Overlap Sending call state U2.

BCC_TE_S_U02_02 clause 5.8.2 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Overlap Sending call state U2.

BCC_TE_S_U02_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of an ALERTING message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Call Initiated call state U1.

BCC_TE_S_U02_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CALL PROCEEDING message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Overlap Sending call state U2.

BCC_TE_S_U02_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of an ALERTING message containing the dummy call reference,
sends no message and remains in the Overlap Sending call state U2.

BCC_TE_S_U02_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CALL PROCEEDING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and enters the Null call state U0.

BCC_TE_S_U02_07 clause 5.8.6.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of an ALERTING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and enters the Null call state U0.

BCC_TE_S_U02_08 clause 5.8.6.2 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CALL PROCEEDING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and enters the Null call state U0.

BCC_TE_S_U02_09 clause 5.8.6.2 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of an ALERTING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and enters the Null call state U0.

BCC_TE_S_U02_10 clause 5.8.7.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CALL PROCEEDING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Outgoing Call Proceeding call state U3.

BCC_TE_S_U02_11 clause 5.8.7.1 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of an ALERTING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Call Delivered call state U4.

BCC_TE_S_U02_12 clause 5.8.7.2 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of a CALL PROCEEDING message containing a non-mandatory information element with content error,
sends no message and enters the Outgoing Call Proceeding call state U3.

BCC_TE_S_U02_13 clause 5.8.7.2 [4]
Ensure that the IUT in the Overlap Sending call state U2, on receipt of an ALERTING message containing a non-mandatory information element with content error,
sends no message and enters the Call Delivered call state U4.

5.2.2.1.4.4 Outgoing Call Proceeding call state U3

BCC_TE_S_U03_01 clause 5.8.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_TE_S_U03_02 clause 5.8.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_TE_S_U03_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_TE_S_U03_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_TE_S_U03_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing the dummy call reference,
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_TE_S_U03_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and enters the Null call state U0.

BCC_TE_S_U03_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and enters the Null call state U0.

BCC_TE_S_U03_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Call Delivered call state U4.

BCC_TE_S_U03_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing a non-mandatory information element with content error,
sends no message and enters the Call Delivered call state U4.

5.2.2.1.4.5 Call Delivered call state U4

BCC_TE_S_U04_01 clause 5.8.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Call Delivered call state U4.

BCC_TE_S_U04_02 clause 5.8.2 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Call Delivered call state U4.

BCC_TE_S_U04_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Call Delivered call state U4.

BCC_TE_S_U04_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Call Delivered call state U4.

BCC_TE_S_U04_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing the dummy call reference,
sends no message and remains in the Call Delivered call state U4.

BCC_TE_S_U04_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and enters the Null call state U0.

BCC_TE_S_U04_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and enters the Null call state U0.

BCC_TE_S_U04_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing an information element, which is not within the context of the base specification,
sends no message and enters the Active call state U10.

BCC_TE_S_U04_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing a non-mandatory information element with content error,
sends no message and enters the Active call state U10.

5.2.2.1.4.6 Call Received call state U7

BCC_TE_S_U07_01 clause 5.8.1 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Call Received call state U7.

BCC_TE_S_U07_02 clause 5.8.2 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Call Received call state U7.

BCC_TE_S_U07_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Call Received call state U7.

BCC_TE_S_U07_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Call Received call state U7.

BCC_TE_S_U07_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message containing the dummy call reference,
sends no message and remains in the Call Received call state U7.

BCC_TE_S_U07_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message with a mandatory information element missing,
sends no message and enters the Null call state U0.

BCC_TE_S_U07_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message containing a mandatory information element with content error,
sends no message and enters the Null call state U0.

BCC_TE_S_U07_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message containing an information element, which is not within the context of the base specification,
sends no message and enters the Null call state U0.

BCC_TE_S_U07_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message containing a non-mandatory information element with content error,
sends no message and enters the Null call state U0.

5.2.2.1.4.7 Active call state U10

BCC_TE_S_U10_01 clause 5.8.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Active call state U10.

BCC_TE_S_U10_02 clause 5.8.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Active call state U10.

BCC_TE_S_U10_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Active call state U10.

BCC_TE_S_U10_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Active call state U10.

BCC_TE_S_U10_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing the dummy call reference,
sends no message and remains in the Active call state U10.

BCC_TE_S_U10_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message with a mandatory information element missing,
sends no message and enters the Null call state U0.

BCC_TE_S_U10_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing a mandatory information element with content error,
sends no message and enters the Null call state U0.

BCC_TE_S_U10_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an information element, which is not within the context of the base specification,
sends no message and enters the Null call state U0.

BCC_TE_S_U10_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing a non-mandatory information element with content error,
sends no message and enters the Null call state U0.

5.2.2.2 Gatekeeper (GK)

The configuration chosen for the tests in this clause assumes that gatekeeper routed call signalling is used. The IUT is connected to one endpoint that originates calls and to one gatekeeper, named destination gatekeeper to which the IUT routes the calls from the originating endpoint.

NOTE: All start call states in this clause are call states in the interface with the calling endpoint.

5.2.2.2.1 Phase A - Call setup

BCC_GK_PHA_01 clause 8.1 [2**], clauses 7.1 and 7.3.10 [**3**]**
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling endpoint containing a User-to-user information element including the destinationAddress field with an E.164 type AliasAddress,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_PHA_02 clause 8.1 [2**], clauses 7.1 and 7.3.10 [**3**]**
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling endpoint containing a User-to-user information element including the destinationAddress field with an H323-ID type AliasAddress,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_PHA_03 clause 8.1 [2**], clauses 7.1 and 7.3.10 [**3**]**
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling endpoint containing a User-to-user information element including the destinationAddress field with a URL-ID type AliasAddress,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_PHA_04 clause 8.1 [2**], clauses 7.1 and 7.3.10 [**3**]**
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling endpoint containing a User-to-user information element including the destinationAddress field with an tranportID type AliasAddress,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_PHA_05 clause 8.1 [2**], clauses 7.1 and 7.3.10 [**3**]**
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling endpoint containing a User-to-user information element including the destinationAddress field with an email-ID type AliasAddress,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_PHA_06 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling endpoint containing a User-to-user information element including the destinationAddress field with an partyNumber type AliasAddress,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_PHA_07 clause 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling endpoint containing the called party number information element including a valid Numbering plan identification other than '1001',
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_PHA_08 clauses 8.1 [2] and 7.3.2 [3]
Ensure that the IUT in the Call Initiated call state U9, on receipt of a CALL PROCEEDING message from the destination Gatekeeper,
sends no message and remains in the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends no message and enters the Outgoing Call Proceeding call state U3 in the interface with the destination Gatekeeper.

BCC_GK_PHA_09 clauses 8.1 [2] and 7.3.1 [3]
Ensure that the IUT in the Outgoing Call Proceeding call state U9, on receipt of an ALERTING message from the destination Gatekeeper,
enters the Call Delivered call state U4 in the interface with the destination Gatekeeper

and
sends an ALERTING message to the calling endpoint and enters the Call Received call state U7 in the interface with the calling endpoint.

BCC_GK_PHA_10 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Outgoing Call Proceeding call state U7, on receipt of a CONNECT message from the destination Gatekeeper,
enters the Active call state U10 in the interface with the destination Gatekeeper

and
sends a CONNECT message to the calling endpoint and enters the Active call state U10 in the interface with the calling endpoint.

BCC_GK_PHA_11 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Call Delivered call state U9, on receipt of a CONNECT message, from the destination Gatekeeper,
sends no message and enters the Active call state U10 in the interface with the destination Gatekeeper

and
sends a CONNECT message to the calling endpoint and enters the Active call state U10 in the interface with the calling endpoint.

BCC_GK_PHA_12 table 4, clauses 7.3.12 and 7.3.13 [3**]**
Ensure that the IUT in the Call Proceeding call state U9, on receipt of a STATUS ENQUIRY message from the calling endpoint,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Call Proceeding call state and remains in the Call Proceeding call state U9.

BCC_GK_PHA_13 table 4, clauses 7.3.12 and 7.3.13 [3**]**
Ensure that the IUT in the Call Received call state U7, on receipt of a STATUS ENQUIRY message from the calling endpoint,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Call Received call state and remains in the Call Received call state U7.

BCC_GK_PHA_14 table 4, clauses 7.3.12 and 7.3.13 [3**]**
Ensure that the IUT in the Active call state U10, on receipt of a STATUS ENQUIRY message from the calling endpoint,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Active call state and remains in the Active call state U10.

5.2.2.2.2 Phase E - Call termination

BCC_GK_PHE_01 clauses 8.5 [2**] and 7.1 [**3**]**
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message from the calling endpoint,
enters the Null call state U0 in the interface with the calling endpoint

and
sends a RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_PHE_02 clauses 8.5 [2**] and 7.1 [**3**]**
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message from the destination gatekeeper,
enters the Null call state U0 in the interface with the destination gatekeeper;

and
sends a RELEASE COMPLETE message to the calling endpoint and enters in the Null call state U0 in the interface with the calling endpoint.

5.2.2.2.3 Inopportune behaviour

NOTE: All messages received in this clause are received from the calling endpoint.

5.2.2.2.3.1 Null call state U0

BCC_GK_I_U00_01 clause 5.8.4 [4**]**
Ensure that the IUT in the Null call state U0, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Null call state U0.

BCC_GK_I_U00_02 table 4 [3**] and clause 5.8.4 [**4**]**
Ensure that the IUT in the Null call state U0, on receipt of a RESUME message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Null call state U0.

BCC_GK_I_U00_03 clauses 5.8.3.2 h) and 5.8.10 [4**]**
Ensure that the IUT in the Null call state U0, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Null call state and remains in the Null call state U0.

BCC_GK_I_U00_04 clauses 5.8.3.2 g) and 5.8.11 [4]
Ensure that the IUT in the Null call state U0, on receipt of a STATUS message containing a Call state information element indicating a call state other than the Null call state,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 101 "message not compatible with call state" and remains in the Null call state U0.

BCC_GK_I_U00_05 clauses 5.8.3.2 g) and 5.8.11 [4]
Ensure that the IUT in the Null call state U0, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
sends no message and remains in the Null call state U0.

5.2.2.2.3.2 Call Received call state U7

BCC_GK_I_U07_01 clause 5.8.4 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_I_U07_02 clause 5.8.11 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_I_U07_03 clause 5.8.4 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Call Received call state U7.

BCC_GK_I_U07_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Call Received call state U7, on receipt of a DISCONNECT message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Call Received call state U7.

5.2.2.2.3.3 Call Proceeding call state U9

BCC_GK_I_U09_01 clause 5.8.4 [4]
Ensure that the IUT in the Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_I_U09_02 clause 5.8.11 [4]
Ensure that the IUT in the Call Proceeding call state U9, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_I_U09_03 clause 5.8.4 [4]
Ensure that the IUT in the Call Proceeding call state U9, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Call Proceeding call state U9.

BCC_GK_I_U09_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Call Proceeding call state U9, on receipt of a RELEASE message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Call Proceeding call state U9.

5.2.2.2.3.4 Active call state U10

BCC_GK_I_U10_01 clause 5.8.11 [4]
Ensure that the IUT in the Active call state U10, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_I_U10_02 clause 5.8.4 [4]
Ensure that the IUT in the Active call state U10, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Active call state U10.

BCC_GK_I_U10_03 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Active call state U10, on receipt of a SUSPEND message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Active call state U10.

5.2.2.2.4 Syntactically invalid messages

NOTE: All messages received in this clause are received from the calling endpoint.

5.2.2.2.4.1 Null call state U0

BCC_GK_S_U00_01 clause 5.8.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Null call state U0.

BCC_GK_S_U00_02 clause 5.8.2 [4]
Ensure that the IUT in the Null call state U0, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Null call state U0.

BCC_GK_S_U00_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Null call state U0.

BCC_GK_S_U00_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Null call state U0.

BCC_GK_S_U00_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing the dummy call reference,
sends no message and remains in the Null call state U0.

BCC_GK_S_U00_06 clause 5.8.3.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing a call reference flag bit set to 1,
sends no message and remains in the Null call state U0.

BCC_GK_S_U00_07 clause 5.8.6.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" and remains in the Null call state U0.

BCC_GK_S_U00_08 clause 5.8.6.2 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" and remains in the Null call state U0.

BCC_GK_S_U00_09 clause 5.8.7.1 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing an information element, which is not within the context of the base specification,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

BCC_GK_S_U00_10 clause 5.8.7.2 [4]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message containing a non-mandatory information element with content error,
ends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling endpoint

and
sends a SETUP message, to the Destination Gatekeeper and enters the Call Initiated call state U1 in the interface with the destination Gatekeeper.

5.2.2.2.4.2 Call Received call state U7

BCC_GK_S_U07_01 clause 5.8.1 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Call Delivered call state U7.

BCC_GK_S_U07_02 clause 5.8.2 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Call Delivered call state U7.

BCC_GK_S_U07_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Call Delivered call state U7.

BCC_GK_S_U07_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Call Delivered call state U7.

BCC_GK_S_U07_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message containing the dummy call reference,
sends no message and remains in the Call Delivered call state U7.

BCC_GK_S_U07_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message with a mandatory information element missing,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U07_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message containing a mandatory information element with content error,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U07_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message containing an information element, which is not within the context of the base specification,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U07_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Delivered call state U7, on receipt of a RELEASE COMPLETE message containing a non-mandatory information element with content error,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

5.2.2.2.4.3 Incoming Call Proceeding call state U9

BCC_GK_S_U09_01 clause 5.8.1 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Incoming Call Proceeding call state U9.

BCC_GK_S_U09_02 clause 5.8.2 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Incoming Call Proceeding call state U9.

BCC_GK_S_U09_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Incoming Call Proceeding call state U9.

BCC_GK_S_U09_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Incoming Call Proceeding call state U9.

BCC_GK_S_U09_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message containing the dummy call reference,
sends no message and remains in the Incoming Call Proceeding call state U9.

BCC_GK_S_U09_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message with a mandatory information element missing,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U09_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message containing a mandatory information element with content error,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U09_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message containing an information element, which is not within the context of the base specification,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U09_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Incoming Call Proceeding call state U9, on receipt of a RELEASE COMPLETE message containing a non-mandatory information element with content error,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

5.2.2.2.4.4 Active call state U10

BCC_GK_S_U10_01 clause 5.8.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Active call state U10.

BCC_GK_S_U10_02 clause 5.8.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Active call state U10.

BCC_GK_S_U10_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Active call state U10.

BCC_GK_S_U10_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Active call state U10.

BCC_GK_S_U10_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing the dummy call reference,
sends no message and remains in the Active call state U10.

BCC_GK_S_U10_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message with a mandatory information element missing,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U10_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing a mandatory information element with content error,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U10_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an information element, which is not within the context of the base specification,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

BCC_GK_S_U10_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing a non-mandatory information element with content error,
enters the Null call state U0 in the interface with the calling endpoint

and
sends the RELEASE COMPLETE message to the destination Gatekeeper and enters in the Null call state U0 in the interface with the destination Gatekeeper.

5.2.2.3 Destination GK (DGK)

The configuration chosen for the tests in this clause assumes that gatekeeper routed call signalling is used. The IUT is connected to one gatekeeper named calling gatekeeper that routes calls to it and to one called endpoint which terminates the calls.

NOTE: All start call states in this clause are call states in the interface with the called endpoint.

5.2.2.3.1 Phase A - Call setup

BCC_DGK_PHA_01 clauses 8.1 [2], clauses 7.1 and 7.3.10 [3]
Ensure that the IUT in the Null call state U0, on receipt of a SETUP message from the calling Gatekeeper,
sends a CALL PROCEEDING message and enters the Incoming Call Proceeding call state U9 in the interface with the calling Gatekeeper

and
sends a SETUP message to the called endpoint and enters the Call Initiated call state U1 in the interface with the called endpoint.

BCC_DGK_PHA_02 clauses 8.1 [2] and 7.3.2 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message, from the called endpoint,
sends no message and enters the Outgoing Call Proceeding call state U3 in the interface with the called endpoint

and
sends no message and remains in the Incoming Call Proceeding call state U9 in the interface with the calling Gatekeeper.

BCC_DGK_PHA_03 clauses 8.1 [2] and 7.3.1 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message from the called endpoint,
sends no message and enters the Call Delivered call state U4 in the interface with the called endpoint

and
sends an ALERTING message to the calling Gatekeeper and enters the Call Received call state U7 in the interface with the calling Gatekeeper.

BCC_DGK_PHA_04 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CONNECT message from the called endpoint,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

BCC_DGK_PHA_05 clauses 8.1 [2] and 7.5 [3]
Ensure that the IUT in the Call Initiated call state U1, on the first expiry of the timer T303,
re-sends the SETUP message and remains in the Call Initiated call state U1.

BCC_DGK_PHA_06 clauses 8.1 [2] and 7.5 [3]
Ensure that the IUT in the Call Initiated call state U1, on the second expiry of the timer T303,
sends a RELEASE COMPLETE message containing either a Cause information element indicating the cause value 102 "recovery on timer expiry" or a User-to-user information element including the reason field indicating why the call was released to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends a RELEASE COMPLETE message to the calling Gatekeeper and enters the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_PHA_07 clauses 8.1 [2] and 7.3.1 [3]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message from the called endpoint,
sends no message and enters the Call delivered call state U4 in the interface with the called endpoint

and
sends an ALERTING message to the calling Gatekeeper and enters the Call received call state U7 in the interface with the calling Gatekeeper.

BCC_DGK_PHA_08 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a CONNECT message from the called endpoint,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

BCC_DGK_PHA_09 clauses 8.1 [2] and 7.3.3 [3]
Ensure that the IUT in the Call delivered call state U4, on receipt of a CONNECT message from the called endpoint,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

BCC_DGK_PHA_10 table 4, clauses 7.3.12 and 7.3.13 [3]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a STATUS ENQUIRY message from the called endpoint,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Call Initiated call state and remains in the Call Initiated call state U1.

BCC_DGK_PHA_11 table 4, clauses 7.3.12 and 7.3.13 [3**]**
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a STATUS ENQUIRY message from the called endpoint,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Outgoing Call Proceeding call state and remains in the Outgoing Call Proceeding call state U3.

BCC_DGK_PHA_12 table 4, clauses 7.3.12 and 7.3.13 [3**]**
Ensure that the IUT in the Call delivered call state U4, on receipt of a STATUS ENQUIRY message from the called endpoint,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Call delivered call state and remains in the Call delivered call state U4.

BCC_DGK_PHA_13 table 4, clauses 7.3.12 and 7.3.13 [3**]**
Ensure that the IUT in the Active call state U10, on receipt of a STATUS ENQUIRY message from the called endpoint,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Active call state and remains in the Active call state U10.

5.2.2.3.2 Phase E - Call termination

BCC_DGK_PHE_01 clauses 8.5 [2**] and 7.1 [**3**]**
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message from the calling Gatekeeper,
enters the Null call state U0 in the interface with the calling Gatekeeper

and
sends a RELEASE COMPLETE message to the called endpoint and enters in the Null call state U0 in the interface with the called endpoint.

BCC_DGK_PHE_02 clauses 8.5 [2**] and 7.1 [**3**]**
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message from the called endpoint,
enters the Null call state U0 in the interface with the called endpoint

and
sends a RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

5.2.2.3.3 Inopportune behaviour

NOTE: All messages received in this clause are received from the called endpoint.

5.2.2.3.3.1 Null call state U0

BCC_DGK_I_U00_01 clause 5.8.4 [4**]**
Ensure that the IUT in the Null call state U0, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Null call state U0.

BCC_DGK_I_U00_02 table 4 [3**] and clause 5.8.4 [**4**]**
Ensure that the IUT in the Null call state U0, on receipt of a RESUME message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Null call state U0.

BCC_DGK_I_U00_03 clauses 5.8.3.2 h) and 5.8.10 [4**]**
Ensure that the IUT in the Null call state U0, on receipt of a STATUS ENQUIRY message,
sends a STATUS message containing a Cause information element indicating the cause value 30 "response to STATUS ENQUIRY" and a Call state information element indicating the Null call state and remains in the Null call state U0.

BCC_DGK_I_U00_04 clauses 5.8.3.2 g) and 5.8.11 [4]
Ensure that the IUT in the Null call state U0, on receipt of a STATUS message containing a Call state information element indicating a call state other than the Null call state,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 101 "message not compatible with call state" and remains in the Null call state U0.

BCC_DGK_I_U00_05 clauses 5.8.3.2 g) and 5.8.11 [4]
Ensure that the IUT in the Null call state U0, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
sends no message and remains in the Null call state U0.

5.2.2.3.3.2 Call Initiated call state U1

BCC_DGK_I_U01_01 clause 5.8.4 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_I_U01_02 clause 5.8.11 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_I_U01_03 clause 5.8.11 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Call Initiated call state U1.

BCC_DGK_I_U01_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a RELEASE message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Call Initiated call state U1.

5.2.2.3.3.3 Outgoing Call Proceeding call state U3

BCC_DGK_I_U03_01 clause 5.8.4 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_I_U03_02 clause 5.8.11 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_I_U03_03 clause 5.8.4 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Outgoing Call Proceeding call state U3.

BCC_DGK_I_U03_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a DISCONNECT message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Outgoing Call Proceeding call state U3.

5.2.2.3.3.4 Call Delivered call state U4

BCC_DGK_I_U04_01 clause 5.8.4 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a RELEASE COMPLETE message,
closes call signalling channel and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_I_U04_02 clause 5.8.11 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_I_U04_03 clause 5.8.4 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Call Delivered call state U4.

BCC_DGK_I_U04_04 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a RELEASE message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Call Delivered call state U4.

5.2.2.3.3.5 Active call state U10

BCC_DGK_I_U10_01 clause 5.8.11 [4]
Ensure that the IUT in the Active call state U10, on receipt of a STATUS message containing a Call state information element indicating the Null call state,
closes call signalling channel and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_I_U10_02 clause 5.8.4 [4]
Ensure that the IUT in the Active call state U10, on receipt of a message containing an unknown message type information element,
sends a STATUS message to the calling endpoint and remains in the Active call state U10.

BCC_DGK_I_U10_03 table 4 [3] and clause 5.8.4 [4]
Ensure that the IUT in the Active call state U10, on receipt of a CONNECT ACKNOWLEDGE message (out of the context of the base specification),
sends a STATUS message to the calling endpoint and remains in the Active call state U10.

5.2.2.3.4 Syntactically invalid messages

NOTE: All messages received in this clause are received from the called endpoint.

5.2.2.3.4.1 Null call state U0

BCC_DGK_S_U00_01 clause 5.8.2 [4]
Ensure that the IUT in the Null call state U0, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Null call state U0.

5.2.2.2.4.2 Call Initiated call state U1

BCC_DGK_S_U01_01 clause 5.8.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Call Initiated call state U1.

BCC_DGK_S_U01_02 clause 5.8.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Call Initiated call state U1.

BCC_DGK_S_U01_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Call Initiated call state U1.

BCC_DGK_S_U01_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CONNECT message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Call Initiated call state U1.

BCC_DGK_S_U01_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing the dummy call reference,
sends no message and remains in the Call Initiated call state U1.

BCC_DGK_S_U01_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_07 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_08 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CONNECT message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_09 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_10 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_11 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CONNECT message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_12 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Outgoing Call Proceeding call state U3 in the interface with the called endpoint

and
sends no message and remains in the Incoming Call Proceeding call state U9 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_13 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Call Delivered call state U4 in the interface with the called endpoint

and
sends an ALERTING message to the calling Gatekeeper and enters the Call Received call state U7 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_14 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CONNECT message containing an information element, which is not within the context of the base specification,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_15 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CALL PROCEEDING message containing a non-mandatory information element with content error,
sends no message and enters the Outgoing Call Proceeding call state U3 in the interface with the called endpoint

and
sends no message and remains in the Incoming Call Proceeding call state U9 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_16 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of an ALERTING message containing a non-mandatory information element with content error,
sends no message and enters the Call Delivered call state U4 in the interface with the called endpoint

and
sends an ALERTING message to the calling Gatekeeper and enters the Call Received call state U7 in the interface with the calling Gatekeeper.

BCC_DGK_S_U01_17 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Initiated call state U1, on receipt of a CONNECT message containing a non-mandatory information element with content error,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

5.2.2.2.4.3 Outgoing Call Proceeding call state U3

BCC_DGK_S_U03_01 clause 5.8.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_DGK_S_U03_02 clause 5.8.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_DGK_S_U03_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an CONNECT message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_DGK_S_U03_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_DGK_S_U03_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a CONNECT message containing the dummy call reference,
sends no message and remains in the Outgoing Call Proceeding call state U3.

BCC_DGK_S_U03_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U03_07 clause 5.8.6.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a CONNECT message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U03_08 clause 5.8.6.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U03_09 clause 5.8.6.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a CONNECT message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U03_10 clause 5.8.7.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing an information element, which is not within the context of the base specification,
sends no message and enters the Call Delivered call state U4 in the interface with the called endpoint

and
sends an ALERTING message to the calling Gatekeeper and enters the Call Received call state U7 in the interface with the calling Gatekeeper.

BCC_DGK_S_U03_11 clause 5.8.7.1 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a CONNECT message containing an information element, which is not within the context of the base specification,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

BCC_DGK_S_U03_12 clause 5.8.7.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of an ALERTING message containing a non-mandatory information element with content error,
sends no message and enters the Call Delivered call state U4 in the interface with the called endpoint

and
sends an ALERTING message to the calling Gatekeeper and enters the Call Received call state U7 in the interface with the calling Gatekeeper.

BCC_DGK_S_U03_13 clause 5.8.7.2 [4]
Ensure that the IUT in the Outgoing Call Proceeding call state U3, on receipt of a CONNECT message containing a non-mandatory information element with content error,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

5.2.2.2.4.4 Call Delivered call state U4

BCC_DGK_S_U04_01 clause 5.8.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Call Delivered call state U4.

BCC_DGK_S_U04_02 clause 5.8.2 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Call Delivered call state U4.

BCC_DGK_S_U04_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of an CONNECT message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Call Delivered call state U4.

BCC_DGK_S_U04_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Call Delivered call state U4.

BCC_DGK_S_U04_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing the dummy call reference,
sends no message and remains in the Call Delivered call state U4.

BCC_DGK_S_U04_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message with a mandatory information element missing,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 96 "mandatory information element missing" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U04_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing a mandatory information element with content error,
sends a RELEASE COMPLETE message containing a Cause information element indicating the cause value 100 "invalid information element" to the called endpoint and enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U04_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing an information element, which is not within the context of the base specification,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

BCC_DGK_S_U04_09 clause 5.8.7.2 [4]
Ensure that the IUT in the Call Delivered call state U4, on receipt of a CONNECT message containing a non-mandatory information element with content error,
sends no message and enters the Active call state U10 in the interface with the called endpoint

and
sends a CONNECT message to the calling Gatekeeper and enters the Active call state U10 in the interface with the calling Gatekeeper.

5.2.2.2.4.5 Active call state U10

BCC_DGK_S_U10_01 clause 5.8.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an erroneous protocol discriminator information element, coded other than '08'H,
sends no message and remains in the Active call state U10.

BCC_DGK_S_U10_02 clause 5.8.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a message which is too short to contain a complete message type information element,
sends no message and remains in the Active call state U10.

BCC_DGK_S_U10_03 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 8 to 5 ≠ '0000'B),
sends no message and remains in the Active call state U10.

BCC_DGK_S_U10_04 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an invalid call reference information element format (octet 1, bits 4 to 1, length too high),
sends no message and remains in the Active call state U10.

BCC_DGK_S_U10_05 clause 5.8.3.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing the dummy call reference,
sends no message and remains in the Active call state U10.

BCC_DGK_S_U10_06 clause 5.8.6.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message with a mandatory information element missing,
enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U10_07 clause 5.8.6.2 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing a mandatory information element with content error,
enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U10_08 clause 5.8.7.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing an information element, which is not within the context of the base specification,
enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

BCC_DGK_S_U10_09 clause 5.8.7.1 [4]
Ensure that the IUT in the Active call state U10, on receipt of a RELEASE COMPLETE message containing a non-mandatory information element with content error,
enters the Null call state U0 in the interface with the called endpoint

and
sends the RELEASE COMPLETE message to the calling Gatekeeper and enters in the Null call state U0 in the interface with the calling Gatekeeper.

History

Document history		
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