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Technical Specification

**Broadband Radio Access Networks (BRAN);
HIPERACCESS;
Conformance testing for the Data Link Control (DLC) layer;
Part 2: Test Suite Structure and
Test Purposes (TSS&TP) specification**

ETSI

Reference

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Broadband Radio Access Networks (BRAN).

The present document is part 2 of a multi-part deliverable covering Broadband Radio Access Networks (BRAN); HIPERACCESS; Protocol Implementation Conformance for the Data Link Control (DLC) layer as identified below:

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

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

Part 3: "Abstract Test Suite (ATS)".

1 Scope

The present document contains the Test Suite Structure (TSS) and Test Purposes (TP) to test the BRAN HIPERACCESS; Data Link Control (DLC) layer.

The objective of the present document is to provide a basis for conformance tests for HIPERACCESS equipment giving a high probability of air interface inter-operability between different manufacturer's HIPERACCESS equipment.

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [3] and ISO/IEC 9646-2 [4]) as well as the ETSI rules for conformance testing (ETS 300 406 [2]) are used as a 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 102 000: "Broadband Radio Access Networks (BRAN); HIPERACCESS; DLC protocol specification".

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

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

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

[5]   ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".

[6]   ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-7 [6] and TS 102 000 [1] apply.

3.2 Symbols

For the purposes of the present document, the following symbol applies:

ms   millisecond(s)

3.3   Abbreviations

For the purposes of the present document, the abbreviations given in ISO/IEC 9646-1 [3], ISO/IEC 9646-6 [5], ISO/IEC 9646-7 [6], TS 102 000 [1] and the following apply:

AP   Access Point (= base station)
APC   AP Controller
APT   AP Transceiver
AT   Access Termination (= terminal = subscriber station)
ATPC   Automatic Transmit Power Control
ATTC   Automatic Transmit Time Control
BO   Inopportune Behaviour
BV   Valid Behaviour
C/I   Carrier-to-Interference power ratio
CE   Connection Establishment
CID   Connection ID
CM   Connection Modification
COC   COnnection Control
CT   Connection Termination
DES   Data Encryption Standard
DL   DownLink
DLC   Data Link Control (layer)
FS   Frequency Scanning
IA   Initial Authentication
ID   IDentity
INC   INitialization Control
IP   Internet Protocol
IUT   Implementation Under Test
KA   Key Allocation
KR   Key Refresh
KU   Keys Usage
LL   Leased Line
LS   Link Supervision
MAC   Medium Access Control
MC   MultiCast
OC   Other Capabilities negotiation
PA   Parameters Acquisition
PDU   Protocol Data Unit
PHY   PHYsical (layer)
PICS   Protocol Implementation Conformance Statement
PN   Physical capabilities Negotiation
RA   RAnging
RE   Reauthentication
RF   Radio Frequency
RLC   Radio Link Control
RRC   Radio Resource Control
SA   Security Association
SAID   Security Association IDentity
SEC   SEcurity Control
SI   Slip Indicator
TD   Transmission Delay
TEK   Traffic Encryption Key
TI   Timer
TP   Test Purposes
TP   Time for Processing
TS   Technical Specification
TSS   Test Suite Structure
UL   UpLink

4   Test Suite Structure (TSS)

4.1   Structure

Figure 1 shows the RLC Test Suite Structure (TSS) including its subgroups defined for the conformance testing.

Test Suite	Protocol group	Protocol subgroup
DLC-AP/ DLC-AT	Initialization Control	Frequency scanning
		Synchronization Acquisition
		APC Identification
		UL and DL Parameters Acquisition
		Ranging
		Physical Capabilities Negotiation
		Other Capabilities Negotiation
	Radio Resource Control	Link Supervision
		Change of PHY Mode, ATPC and ATTC
		Load Levelling
	Security Control	Initial Authentication
		Reauthentication
		Key Allocation
		Key Refresh
		Traffic Encryption Keys Usage
	Connection Control	Connection Establishment
		Connection Modification
		Connection Termination
		Multicast Connections

Figure 1: TSS for HIPERACCESS RLC

The test suite is structured as a tree with a first level defined as DLC-AP or DLC-AT representing the protocol groups "DLC for AP" and "DLC for AT".

4.2   Test groups

The test groups are organized in three levels. The first level creates three protocol groups representing the protocol services. The second level separates the protocol services in functional modules. The last level in each branch contains one or more of the standard ISO subgroups BV, TI, BO.

4.2.1   Protocol groups

The protocol groups identify the DLC services: Initialization control function, Radio resource control function, Security control and Connection control function, as defined in TS 102 000 [1].

4.2.1.1   Initialization control function

The initialization control function group is divided in seven functional modules. The first functional module identifies the Frequency scanning procedures. The second functional module identifies the Synchronization Acquisition procedures. The third functional module distinguishes the APC Identification procedures. The fourth functional module distinguishes the UL and DL Parameters Acquisition procedures. The fifth functional module identifies the Ranging procedures. The sixth functional module distinguishes the Physical Capabilities Negotiation procedures. The last functional module distinguishes the Other Capabilities Negotiation procedures.

4.2.1.2 Radio resource control function

The Radio resource control protocol group is divided in three functional modules. The first functional module distinguishes the Link Supervision procedures. The second functional module distinguishes the Change of PHY Mode, ATPC and ATTC procedures. The last functional module identifies the Load Levelling procedures.

4.2.1.3 Security control function

The Security control protocol group is divided in four functional modules. The first functional module contains the Initial Authentication procedures. The second functional module contains the Reauthentication procedures. The third functional module contains the Key Allocation procedures. The last functional module identifies the Key Refresh procedures.

4.2.1.4 Connection control function

The Connection control protocol group is divided in four functional modules. The first functional module identifies the Connection Establishment procedures. The second functional module identifies the Connection Modification procedures. The third functional module distinguishes the Connection Termination procedures. The last functional module distinguishes the Multicast Connections procedures.

4.2.2 Main test groups

The main test groups are the valid behaviour group, the invalid behaviour group and the inopportune behaviour group.

4.2.2.1 Valid Behaviour (BV) tests

This test sub group shall verify that the IUT reacts in conformity with the TS, after receipt or exchange of valid Protocol Data Units (PDUs). Valid PDUs means that the exchange of messages and the content of the exchanged messages are considered as valid.

4.2.2.2 Timer (TI) tests

This test sub group shall verify that the IUT reacts in conformity with the TS, after expiry of a defined timer.

4.2.2.3 Inopportune Behaviour (BO) tests

This test sub group shall verify that the IUT reacts in conformity with the TS, after receipt of a syntactically correct PDU not expected in the actual message exchange.

5 Test Purposes (TP)

5.1 Introduction

5.1.1 TP definition conventions

The TPs are defined following particular rules as shown in table 1.

Table 1: TP definition rules

TP Id according to the TP naming conventions	Reference. Initial condition. Stimulus. Expected behaviour.
TP Id	The TP Id is a unique identifier it shall be specified according to the TP naming conventions defined in the clause below.
Reference	The reference should contain the references of the subject to be validated by the actual TP (specification reference, clause, and paragraph).
Condition	The condition defines in which initial state the IUT has to be to apply the actual TP.
Stimulus	The stimulus defines the test event to which the TP is related.
Expected behaviour	Definition of the events that are expected from the IUT to conform to the base specification.

5.1.2 TP naming conventions

The identifier of the TP is built according to table 2.

Table 2: TP naming convention

Identifier:	TP/<st>/<pg>/<fm>/<x>-<nnn>		
	<st> = side type	AP	Access Point
		AT	Access Termination
	<pg> = protocol group	INC	INitialization Control function
		RRC	Radio Resource Control function
		SEC	SEcurity Control function
		COC	COnnection Control function
	<fm> = functional module	FS	Frequency Scanning
		SA	Synchronization Acquisition
		SI	APC Identification
		PA	UL and DL Parameters Acquisition
		RA	RAnging
		PN	Physical capabilities Negotiation
		OC	Other Capabilities negotiation
		LS	Link Supervision
		PT	Change of PHY Mode, ATPC and ATTC
		LL	Load Levelling
		IA	Initial Authentication
		RE	REauthentication
		KA	Key Allocation
		KR	Key Refresh
		KU	traffic encryption Keys Usage
		CE	Connection Establishment
		CM	Connection Modification
		CT	Connection Termination
		MC	Multicast Connections
	x = Type of testing	BV	Valid Behaviour tests
		TI	TImer tests
		BO	Inopportune Behaviour tests
	<nnn> = sequential number	(000 to 999)	Test Purpose number

EXAMPLE: TP/AT/SEC/KU/BV-010 is the tenth purpose for the valid behaviour testing of the Key Usage procedures of the Security control function implemented at AT side.

5.1.3 Sources of TP definitions

All TPs are specified according to TS 102 000 [1].

5.2 Test purposes for AP

5.2.1 Initialization Control

5.2.1.1 Frequency scanning

TP/AP/INC/FS/BV-000	Reference: TS 102 000 [1], clause 5.2.3. Initial condition: IUT is the AP. Tester is the AT. The IUT has powered up and is operating. Check that: the IUT transmits, on the correct frequencies, frames with 1 ms fixed duration each containing a valid preamble of 32 symbols and a valid control zone. Final pseudo state: the IUT continues operating.

5.2.1.2 UL and DL Parameters Acquisition

TP/AP/INC/PA/BV-000	Reference: TS 102 000 [1], clause 10.3.4. Initial condition: IUT is the AP. Tester is the AT. The IUT has powered up and is operating. Check that: the IUT transmits GBI messages. Final pseudo state: the IUT continues operating.

5.2.1.3 Ranging

TP/AP/INC/RA/BV-000	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: the IUT is transmitting GBI messages. The IUT has yet to start ranging. The MAC address corresponding to the TE is in the IUT's database. Check that: to begin ranging, the IUT transmits in the most robust PHY mode a valid Ranging Invitation message containing the TE's MAC address. Final pseudo state: IUT has started ranging. NOTE: The IUT's transmission of Ranging Grants until transmitting the Ranging Invitation is acceptable behaviour but not required for conformance.
TP/AP/INC/RA/BV-001	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT has started ranging. Check that: the IUT eventually transmits a Ranging Grant for the TE. Final pseudo state: IUT is waiting for a Ranging Request. NOTE: The IUT's transmission of additional Ranging Invitations between the first invitation and the Ranging Grant is acceptable behaviour but not required for conformance.
TP/AP/INC/RA/BV-002	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Request. Check that: after not receiving a Ranging Request response for the Ranging Grant, the IUT eventually transmits a Ranging Invitation containing the TE's MAC address. Final pseudo state: IUT has started ranging. NOTE: The IUT's transmission of additional Ranging Grants until transmitting the Ranging Invitation is acceptable behaviour but not required for conformance.
TP/AP/INC/RA/BV-003	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Request. Check that: after not receiving a Ranging Request response for the Ranging Grant, the IUT continues transmitting Ranging Grants until receiving a valid Ranging Req message. Final pseudo state: IUT is waiting for a Ranging Request. NOTE: The IUT" transmission of additional Ranging Invitation messages while transmitting the successive Ranging Grants is acceptable behaviour but is not required for conformance.

TP/AP/INC/RA/BV-004	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Request. Check that: when the TE sends a Ranging Request with transmission characteristics that require continued ranging, the IUT transmits a Ranging Continue message followed by a Ranging Grant at least 10 frames after the Ranging Continue message. Final pseudo state: IUT is waiting for a Ranging Request.
TP/AP/INC/RA/BV-005	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Request. Check that: each time the TE sends a Ranging Request with transmission characteristics that require continued ranging, the IUT transmits a Ranging Continue message followed by a Ranging Grant at least 10 frames after the Ranging Continue message. Final pseudo state: IUT is waiting for a Ranging Request. NOTE: This TP is for cycling through Ranging Continue and Ranging Continue each time the Ranging Request transmission characteristics are not good enough for a Ranging Success message. The number of cycles is unlimited in the specification.
TP/AP/INC/RA/BV-006	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Request. Check that: when the TE sends a Ranging Request with successful ranging transmission characteristics, the IUT transmits a Ranging Success message followed by a Normal Grant at least 10 frames after the Ranging Success message. Final pseudo state: IUT is waiting for a Ranging Ack. NOTE: No Ranging Continue message is expected from the IUT.
TP/AP/INC/RA/BV-007	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Request. For n times, the TE sends a Ranging Request with transmission characteristics that require continued ranging, the IUT transmits a Ranging Continue message followed by a Ranging Grant at least 10 frames after the Ranging Continue message. Check that: when the TE sends a Ranging Request with successful ranging transmission characteristics, the IUT transmits a Ranging Success message followed by a Normal Grant at least 10 frames after the Ranging Success message. Final pseudo state: IUT is waiting for a Ranging Ack. NOTE: "n" is a PIXIT value. The number of cycles that a Ranging Continue message can be transmitted is unlimited in the specification. This TP checks that the IUT successfully transitions from sending several Ranging Continue messages to sending the Ranging Success message.
TP/AP/INC/RA/BV-008	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Ack. Physical Capabilities negotiation is required. Check that: when the TE sends a valid Ranging Ack, the IUT transmits either a valid Physical Capabilities Request or a valid RlcAuthCertificateReq message or a valid Other Capabilities Request message or nothing. In the latest case (nothing) check that: when the TE sends a valid Connection Addition Init message, the IUT transmits a valid Connection Addition Setup message. Final pseudo state: Ranging is completed. NOTE: This TP assumes the IUT's transmission of Normal Grants for the Ranging Ack and all following messages.
TP/AP/INC/RA/BV-009	Reference: TS 102 000 [1], SDL InitializationControl_2004_09_22. Initial condition: IUT is waiting for a Ranging Ack. Check that: when the TE does not respond to the Normal Grant for the Ranging Ack, the IUT transmits a Ranging Grant. Final pseudo state: IUT has re-started ranging. NOTE: The IUT's transmission of additional Ranging Invitation(s) before the Ranging Grant is acceptable behaviour but not required for conformance.

5.2.1.4   Physical Capabilities Negotiation

TP/AP/INC/PN/BV-000	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization. Check that: the IUT transmits a valid Physical Capabilities Request message. Final pseudo state: the IUT has begun physical capabilities negotiation.
TP/AP/INC/PN/BV-001	Reference: TS 102 000 [1], clauses 10.5.1 and E.3.1. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization and has transmitted a Physical Capabilities Request message. Check that: upon receiving a valid Physical Capabilities Information message within the duration of timer T_PhyCapabilitiesReq, the IUT transmits a valid Physical Capabilities Confirmation message. Final pseudo state: the IUT waits to complete physical capabilities negotiation.

TP/AP/INC/PN/BV-002	Reference: TS 102 000 [1], clauses 10.5.1 and E.3.1. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization, transmitted a valid Physical Capabilities Request message, received a valid Physical Capabilities Information message, and transmitted a valid Physical Capabilities Confirmation message. Check that: the IUT starts the timer T_PhyCapabilitiesCnf and transmits no message during this timer's duration. Final pseudo state: the IUT continues physical capabilities negotiation. NOTE: Physical capabilities negotiation is complete if and only if the IUT does not receive a Physical Capabilities Information message during this timer's duration.
TP/AP/INC/PN/BV-003	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization, transmitted a valid Physical Capabilities Request message, received a valid Physical Capabilities Information message, transmitted a valid Physical Capabilities Confirmation message, and started the timer T_PhyCapabilitiesCnf. Check that: upon reception of a Physical Capabilities Information message during the duration of T_PhyCapabilitiesCnf, the IUT retransmits a valid Physical Capabilities Confirmation message and restarts T_ PhyCapabilitiesCnf. Final pseudo state: the IUT continues physical capabilities negotiation.
TP/AP/INC/PN/BV-004	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization, transmitted a valid Physical Capabilities Request message, received a valid Physical Capabilities Information message, transmitted a valid Physical Capabilities Confirmation message, and started the timer T_PhyCapabilitiesCnf. Check that: after the timer expires and the IUT has not received any Physical Capabilities Information message, the IUT considers physical capabilities negotiation completed. Final pseudo state: the IUT has completed physical capabilities negotiation but is not yet operational.

5.2.1.5   Other Capabilities Negotiation

TP/AP/INC/OC/BV-000	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AP. Tester is the AT. Authentication is required. The IUT has completed authentication. During authentication, at least one SAID required a TEK allocation. Check that: after expiration of the timer T_TekAllocation, the IUT transmits a valid Other Capabilities Request message. Final pseudo state: the IUT has begun other capabilities negotiation.
TP/AP/INC/OC/BV-001	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AP. Tester is the AT. Authentication is required. The IUT has completed authentication. During authentication, no TEK allocation occurred. Check that: after expiration of the timer T_AuthReply, the IUT transmits a valid Other Capabilities Request message. Final pseudo state: the IUT has begun other capabilities negotiation.
TP/AP/INC/OC/BV-002	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AP. Tester is the AT. Authentication is required. The IUT has completed Authentication and has transmitted a valid Other Capabilities Request message. Check that: upon receiving a valid Other Capabilities Information message within the duration of timer T_OtherCapabilitiesReq, the IUT transmits a valid Other Capabilities Confirmation message. Final pseudo state: the IUT waits to complete other capabilities negotiation.
TP/AP/INC/OC/BV-003	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AP. Tester is the AT. Authentication is required. The IUT has completed authentication, transmitted a valid Other Capabilities Request message, received a valid Other Capabilities Information message, and transmitted a valid Other Capabilities Confirmation message. Check that: the IUT starts the timer T_OtherCapabilitiesCnf and transmits no message during this timer's duration. Final pseudo state: the IUT continues other capabilities negotiation. NOTE: Other capabilities negotiation is complete if and only if the IUT does not receive an Other Capabilities Information message during this timer's duration.

TP/AP/INC/OC/BV-004	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AP. Tester is the AT. Authentication is required. The IUT has completed authentication, transmitted a valid Other Capabilities Request message, received a valid Other Capabilities Information message, transmitted a valid Other Capabilities Confirmation message, and started the timer T_OtherCapabilitiesCnf. Check that: upon reception of an Other Capabilities Information message during the duration of T_OtherCapabilitiesCnf, the IUT retransmits a valid Other Capabilities Confirmation message and restarts T_OtherCapabilitiesCnf. Final pseudo state: the IUT continues other capabilities negotiation.
TP/AP/INC/OC/BV-005	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AP. Tester is the AT. Authentication is required. The IUT has completed authentication, transmitted a valid Other Capabilities Request message, received a valid Other Capabilities Information message, transmitted a valid Other Capabilities Confirmation message, and started the timer T_ OtherCapabilitiesCnf. Check that: each time the IUT receives an Other Capabilities Information message in the duration of T_ OtherCapabilitiesCnf, the IUT transmits a valid Other Capabilities Confirmation message and restarts T_ OtherCapabilitiesCnf. Final pseudo state: the IUT continues other capabilities negotiation.
TP/AP/INC/OC/BV-006	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AP. Tester is the AT. Authentication is required. The IUT has completed authentication, transmitted a valid Other Capabilities Request message, received a valid Other Capabilities Information message, transmitted a valid Other Capabilities Confirmation message, and started the timer T_ OtherCapabilitiesCnf. Check that: after the timer expires and the IUT has not received any Other Capabilities Information message, the IUT considers other capabilities negotiation completed. Final pseudo state: the IUT has completed other capabilities negotiation and is now operational with regards to this AT.

5.2.2 Radio Resource Control

5.2.2.1 Link Supervision

TP/AP/RRC/LS/BV-000	Reference: TS 102 000 [1], clauses 11.2.2 and 10.4.1. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Check that: the IUT detects a link interruption; it irregularly transmits both RlcRangingInvitation messages and ranging grants to the Tester.
TP/AP/RRC/LS/BV-001	Reference: TS 102 000 [1], clause 11.2.2. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The Tester does not reply to the grants sent by the IUT. Check that: the IUT irregularly transmits both RlcRangingInvitation messages and ranging grants to the Tester.
TP/AP/RRC/LS/BV-002	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The IUT has sent an RlcInitializationCmd message with InitialisationCmd equal to rejectedFromNetwork. Check that: the IUT gives no grants to the Tester after this command.
TP/AP/RRC/LS/BV-003	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The IUT has sent an RlcInitializationCmd message with InitialisationCmd equal to rejectedFromChannel. Check that: the IUT gives no grants to the Tester after this command.
TP/AP/RRC/LS/BV-004	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The IUT has sent an RlcInitializationCmd message with InitialisationCmd equal to firstInitialization. Check that: the IUT gives no grants to the Tester after this command except for ranging grants.
TP/AP/RRC/LS/BV-005	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The IUT has sent an RlcInitializationCmd message with InitialisationCmd equal to transmissionStop. Check that: the IUT gives no grants to the Tester after this command except for ranging grants.

5.2.2.2 Change of PHY Mode, ATPC and ATTC

TP/AP/RRC/PT/BV-000	Reference: TS 102 000 [1], clause 11.3.2. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Check that: the IUT transmits at least every 50 ms to 200 ms an uplink grant.
TP/AP/RRC/PT/BV-001	Reference: TS 102 000 [1], clause 11.3.3. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Check that: the IUT transmits an RlcMeasurementReportCriterium message to change the periodReportGeneral acquired in the GBI message or to stop the reporting.
TP/AP/RRC/PT/BV-002	Reference: TS 102 000 [1], clause 11.3.4. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The tester has transmitted an RlcMeasurementReportData message with valid new DownlinkPhyMode wanted. Check that: the IUT transmits an RlcDownlinkPhyModeChange message with the DownlinkPhyModeGranted parameter.
TP/AP/RRC/PT/BV-003	Reference: TS 102 000 [1], clause 11.3.4. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Conditions exist that cause AP to allocate another PHY mode region to AT. Check that: the IUT transmits an RlcDownlinkPhyModeChange message with the new highest DownlinkPhyMode.
TP/AP/RRC/PT/BV-004	Reference: TS 102 000 [1], clause 11.3.4. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Conditions exist that cause AP to allocate another PHY mode region to AT. The IUT has transmited an RlcDownlinkPhyModeChange message with the new DownlinkPhyMode. Check that: the IUT retransmits the RlcDownlinkPhyModeChange message if the timer T_DownlinkPhyModeChange expires.
TP/AP/RRC/PT/BV-005	Reference: TS 102 000 [1], clause 11.3.5. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Conditions exist that cause AP to adjust the uplink transmission power control. Check that: the IUT transmits an RlcUplinkCorrection message.
TP/AP/RRC/PT/BV-006	Reference: TS 102 000 [1], clause 11.3.5. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Conditions exist that cause AP to adjust the uplink transmission timing. Check that: the IUT transmits an RlcUplinkCorrection message.
TP/AP/RRC/PT/BV-007	Reference: TS 102 000 [1], clause 11.3.5. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. Conditions exist that cause AP to adjust the uplink transmission power control. The IUT has transmited an RlcUplinkCorrection message. Check that: the IUT retransmits an RlcUplinkCorrection message if the timer T_UplinkCorrection expires.
TP/AP/RRC/PT/BV-008	Reference: TS 102 000 [1], clause 11.3.6. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The IUT then transmits to the tester in a mode other than the most robust PHY mode and with power not high enough. Check that: the IUT implements the adaptive PHY mode procedure. Final pseudo state: the IUT has changed to a more viable PHY mode and continues transmitting at the same downlink power level.
TP/AP/RRC/PT/BV-009	Reference: TS 102 000 [1], clause 11.3.6. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The tester transmits to the tester in a mode other than the most robust PHY mode and with power not high enough. The IUT then implements the adaptive PHY mode procedure. The DL transmission power is still not high enough. Check that: the IUT increases its downlink transmit power. The power correction is applied immediately before the next downlink frame preamble. The power correction does not exceed 1 dB per 50 ms and 1 db per step. Final pseudo state: the IUT continues operating and transmits at the new power level.

5.2.2.3   Load Levelling (Inter-Carrier Handover)

TP/AP/RRC/LL/BV-000	Reference: TS 102 000 [1], clause 11.6. Initial condition: AP is the IUT. The tester is the AT. The IUT has initialized and connected its peer. The IUT has sent an RlcHandoverCmd message and has received an RlcHandoverCmdAck message. Check that: the IUT starts initialization using the new APT.

5.2.3   Security Control

5.2.3.1   Initial Authentication

TP/AP/SEC/IA/BV-000	Reference: TS 102 000 [1], clause 12.2.1. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 1 security measures are in effect. Other capabilities are to be negotiated. Check that: the IUT transmits a valid Other Capabilities Request message.
TP/AP/SEC/IA/BV-001	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. Check that: the IUT transmits a valid RlcAuthCertificateReq message.
TP/AP/SEC/IA/BV-002	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. The IUT has transmitted a valid RlcAuthCertificateReq message. The tester then transmits an RlcAuthCertificateInfo message with an invalid certificate. Check that: the IUT transmits a valid RlcAuthReject message.
TP/AP/SEC/IA/BV-003	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. The IUT has transmitted a valid RlcAuthCertificateReq message. The tester then transmits an RlcAuthCertificateInfo message with a valid certificate. Check that: the IUT transmits a valid RlcAuthKeyCmd message.
TP/AP/SEC/IA/BV-004	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. The IUT has transmitted a valid RlcAuthCertificateReq message. The tester then transmits an RlcAuthCertificateInfo message with a valid certificate. The IUT then transmits an RlcAuthKeyCmd message. The tester then transmits an RlcAuthKeyAck message with an invalid Hmac of Nonce. Check that: the IUT retransmit the RlcAuthKeyCmd message with the same parameters as the first message.

5.2.3.2   Reauthentication

TP/AP/SEC/RE/BV-000	Reference: TS 102 000 [1], clause 12.3.3. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization. Phase 2 or 3 security measures are in effect. Check that: to generate a new AuthKey, the IUT transmits a valid RlcAuthKeyCmd message.
TP/AP/SEC/RE/BV-001	Reference: TS 102 000 [1], clause 12.3.3. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization. Phase 2 or 3 security measures are in effect. The IUT has transmitted a valid RlcAuthKeyCmd message. The tester has then transmitted an RlcAuthKeyAck message with an invalid Hmac parameter. Check that: the IUT transmits another RlcAuthKeyCmd message with the same parameters as the first message.

5.2.3.3   Key Allocation

TP/AP/SEC/KA/BV-000	Reference: TS 102 000 [1], diagram 27, clause 12.4.4. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. The IUT has transmitted a valid RlcAuthCertificateReq message. The tester then transmits an RlcAuthCertificateInfo message with a valid certificate. The IUT then transmits an RlcAuthKeyCmd message. The tester then transmits an RlcAuthKeyAck message with a valid Hmac of Nonce. Thus, the Authentication Key is valid. Check that: the IUT transmits a valid RlcTekAllocationFirst message.
TP/AP/SEC/KA/BV-001	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. First Authentication is completed. The IUT has transmitted a valid RlcTekAllocationFirst message and started T_TekAllocationFirst. The tester than transmits a valid RlcTekAllocationFirstAck message. Check that: the IUT stops T_TekAllocationFirst and transmits a valid RlcTekAllocationFirstTimerStop message. Post condition: First Tek Allocation is complete.
TP/AP/SEC/KA/BV-002	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. First Authentication is completed. The IUT has transmitted a valid RlcTekAllocationFirst message and started T_TekAllocationFirst.. The tester than transmits a RlcTekAllocationFirstAck message with an invalid Hmac of a Nonce. Check that: the IUT restarts T_TekAllocationFirst and transmits another valid RlcTekAllocationFirst message with the same parameters as the first.

5.2.3.4   Key Refresh

TP/AP/SEC/KR/BV-000	Reference: TS 102 000 [1], diagram 26, clause 12.4.3. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization. A connection has been setup and data has been exchanged on the connection. Phase 2 or 3 security measures are in effect. Check that: to refresh a Tek, the IUT transmits a valid RlcTekAllocationRefresh message.
TP/AP/SEC/KR/BV-002	Reference: TS 102 000 [1], diagram 26, clause 12.4.3. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization. A connection has been setup and data has been exchanged on the connection. Phase 2 or 3 security measures are in effect. To refresh a Tek, the IUT has transmitted a valid RlcTekAllocationRefresh message. The tester has then transmitted an RlcTekAllocationRefreshAck message with an invalid Hmac. Check that: the IUT transmits another valid RlcTekAllocationRefresh message with the same parameters as the first.
TP/AP/SEC/KR/BV-002	Reference: TS 102 000 [1], clause 12.4.7. Initial condition: IUT is the AP. Tester is several ATs. The IUT has completed physical capabilities negotiation. Phase 3 security measures are in effect. Initialization is completed. A multicast connection is set up. Encrypted DL data PDUs have been sent. To refresh the Teks currently at EKSn and (TEK,IVP)n. Check that: the IUT transmits an RlcTekAllocationRefresh message to each AT in the multicast.group.
TP/AP/SEC/KR/BV-003	Reference: TS 102 000 [1], clause 12.4.3. Initial condition: IUT is the AP. Tester is the AT. The IUT has completed initialization. A connection has been setup. Phase 2 or 3 security measures are in effect. Check that: the next TEK refresh procedure shall not be performed by the IUT before at least one MAC data PDU in the UL direction using TEKn is received by the IUT.

5.2.3.5   Traffic Encryption Keys Usage

TP/AP/SEC/KU/BV-000	Reference: TS 102 000 [1], clause 12.4.6. Initial condition: IUT is the AP. Tester is the AT. The IUT has initialized and connected its peer. Phase 1 security measures are in effect. Check that: to change encryption keys from (TEK, IVP)n to (TEK, IVP)n+1, the IUT places EKSn+1 modulo 4 in a DL frame.
TP/AP/SEC/KU/BV-001	Reference: TS 102 000 [1], clause 12.4.6. Initial condition: IUT is the AP. Tester is multiple ATs. The IUT has initialized and connected its peers. Phase 1 security measures are in effect. The IUT has changed encryption keys by placing EKSn+1 modulo 4 in DL frames. As one or several ATs, the tester transmits encrypted data UL PDUs according to EKSn modulo 4. And, as the remaining ATs, the tester transmits encrypted data UL PDUs according to EKSn+1 modulo 4. Check that: the IUT successfully decodes all UL data PDUs according to the EKS in the uplink frame.
TP/AP/SEC/KU/BV-002	Reference: TS 102 000 [1], clause 12.4.6. Initial condition: IUT is the AP. Tester is multiple ATs. The IUT has initialized and connected its peers. Phase 1 security measures are in effect. Check that: the IUT commands the TEK exchanges for the DL by switching EKS for all its peers at the same time.
TP/AP/SEC/KU/BV-003	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AP. Tester is the AT. The IUT has initialized and connected its peer. Phase 2 security measures are in effect. EKSn modulo 4 and (TEK, IVP)n modulo 4 are in use for encrypting DL data PDUs. EKSn+1 modulo 4 and (TEK, IVP)n+1 modulo 4 are in use for encrypting UL data PDUs. Check that: to change encryption keys, the IUT uses EKSn+1 modulo 4 and (TEK, IVP)n+1 modulo 4 for encrypting DL data PDUs. And, that the IUT continues to decrypt UL messages using the same keys as before; i.e. EKSn+1 modulo 4 and (TEK, IVP)n+1.
TP/AP/SEC/KU/BV-004	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AP. Tester is the AT. The IUT has initialized and connected its peer. Phase 2 security measures are in effect. To change encryption keys, the IUT is using EKSn+1 modulo 4 and (TEK, IVP)n+1 modulo 4 for encrypting DL data PDUs. The. RlcTekAllocationRefresh procedure has succeeded. Check that: the IUT continues to use EKSn+1 modulo 4 and (TEK, IVP)n+1 modulo 4 for encrypting DL data PDUs, And, that the IUT continues to decrypt UL messages using the same keys as before; i.e. EKSn+1 modulo 4 and (TEK, IVP)n+1 until the UL EKS changes to n+2. And, that when the UL EKS changes to n+2, IUT decrypts UL messages using the new key; i.e. EKSn+2 modulo 4 and (TEK, IVP)n+2.
TP/AP/SEC/KU/BV-005	Reference: TS 102 000 [1], clause 12.4.7. Initial condition: IUT is the AP. Tester is several ATs. The IUT has completed physical capabilities negotiation. Phase 3 security measures are in effect. Initialization is completed. A multicast connection is set up. Encrypted DL data PDUs have been sent. To refresh the Teks currently at EKSn and (TEK,IVP)n, the IUT has transmitted an RlcTekAllocationRefresh message to each AT in the multicast.group. Check that: the IUT directs the use of the new EKSn+1 and corresponding (TEK, IVP)n+1 only after having received RlcTekAllocationRefreshAck from each AT in the multicast group.

5.2.4 Connection Control

5.2.4.1 Connection Establishment

5.2.4.1.1 AP Initiated Connection Establishment

TP/AP/COC/CE/BV-000	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized and operational. Check that: to establish a connection, the IUT sends a valid Connection Addition Setup message. Final pseudo state: the IUT is establishing a connection.

TP/AP/COC/CE/BV-001	Reference: TS 102 000 [1], clause 13.4.2.1.
	Initial condition: IUT is the AP. Tester is the AT. IUT is initialized and has transmitted a valid Connection Addition Setup message.
	Check that: upon receiving a valid Connection Addition Ack message, the IUT:
	  1) Starts T_RlcConnectionAdditionAck.
	  2) Considers the connection established.
	Final pseudo state: the IUT is operational and the connection is established.

TP/AP/COC/CE/BV-002	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, has sent a Connection Addition Setup message, and started T_RlcConnectionAdditionSetup. Check that: after T_RlcConnectionSetup expires without receiving a Connection Addition Ack message; the IUT retransmits another valid Connection Addition Setup message with the same Transaction ID. Final pseudo state: the IUT is establishing a connection.

TP/AP/COC/CE/BV-003	Reference: TS 102 000 [1], clause 13.4.2.3.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has sent a Connection Addition Setup message, and started T_RlcConnectionAdditionSetup.
	Check that: each time T_RlcConnectionAdditionSetup expires without the IUT having received a Connection Addition Ack message, the IUT:
	  1) Transmits another valid Connection Addition Setup message with the same Transaction ID.
	  2) And restarts T_RlcConnectionAdditionSetup upon sending this message.
	Final pseudo state: the IUT is establishing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.2.4.1.2 AT Initiated Connection Establishment

TP/AP/COC/CE/BV-004	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized and operational. Check that: upon receiving a valid Connection Addition Init message, the IUT replies to the LT with a Connection Addition Setup message. Final pseudo state: the IUT is establishing a connection.

TP/AP/COC/CE/BV-005	Reference: TS 102 000 [1], clause 13.4.2.1.
	Initial condition: IUT is the AP. Tester is the AT.
	The IUT is initialized, has received a Connection Addition Init message, and then responded with a Connection Addition Setup message.
	Check that: upon receiving a valid Connection Addition Ack message, the IUT:
	  1) Starts T_RlcConnectionAdditionAck.
	  2) Considers the connection established.
	Final pseudo state: the IUT is operational and the connection is established.

TP/AP/COC/CE/BV-006	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, has received a Connection Addition Init message, and then sent a Connection Addition Setup message and started T_RlcConnectionAdditionSetup. Check that: upon receiving a Connection Addition Init message during this timer's duration with the same Transaction ID, the IUT retransmits another valid Connection Addition Setup message. Final pseudo state: the IUT is establishing a connection.

TP/AP/COC/CE/BV-007	Reference: TS 102 000 [1], clause 13.4.2.1.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has received a Connection Addition Init message, then sent a Connection Addition Setup message and started T_RlcConnectionAdditionSetup.
	Check that: each time the IUT receives a Connection Addition Init message during this timer's duration:
	  1) The IUT retransmits another valid Connection Addition Setup message with the same Transaction ID.
	  2) And restarts T_ RlcConnectionAdditionSetup upon sending this Setup message.
	Final pseudo state: the IUT is establishing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur

TP/AP/COC/CE/BV-008	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, has received a Connection Addition Init message, then sent a Connection Addition Setup message, and started T_RlcConnectionAdditionSetup. Check that: after T_RlcConnectionAdditionSetup expires without receiving any message; the IUT retransmits another valid Connection Addition Setup message with the same Transaction ID. Final pseudo state: the IUT is establishing a connection.

TP/AP/COC/CE/BV-009	Reference: TS 102 000 [1], clause 13.4.2.1.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has sent a Connection Addition Setup message, and started T_RlcConnectionAdditionSetup.
	Check that: each time T_RlcConnectionAdditionSetup expires without the IUT having received any message, the IUT:
	  1) Retransmits another valid Connection Addition Setup message with the same Transaction ID.
	  2) And restarts T_RlcConnectionAdditionSetup upon sending this message.
	Final pseudo state: the IUT is establishing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.2.4.2   Connection Modification

5.2.4.2.1   AP Initiated Connection Modification

TP/AP/COC/CM/BV-000	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized and a connection is established with the Tester. Check that: to modify a connection, the IUT sends a valid Connection Change Setup message. Final pseudo state: the IUT is modifying a connection.

TP/AP/COC/CM/BV-001	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has a valid connection with the Tester, and has transmitted a valid Connection Change Setup message.
	Check that: upon receiving a valid Connection Change Ack message, the IUT:
	  1) Starts T_RlcConnectionChangeAck.
	  2) Considers the connection modified.
	Final pseudo state: the IUT is operational and the connection continues as modified.

TP/AP/COC/CM/BV-002	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, has a valid connection with the Tester, has transmitted a Connection Change Setup message, and started T_RlcConnectionChangeSetup. Check that: after T_RlcConnectionChangeSetup expires without receiving a Connection Change Ack message; the IUT retransmits another valid Connection Change Setup message with the same Transaction ID. Final pseudo state: the IUT is modifying a connection.

TP/AP/COC/CM/BV-003	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has a valid connection with the Tester, has transmitted a Connection Change Setup message, and started T_RlcConnectionChangeSetup.
	Check that: each time T_RlcConnectionChangeSetup expires without the IUT having received a Connection Change Ack message, the IUT:
	  1) Restarts T_RlcConnectionChangeSetup.
	  2) And retransmits another valid Connection Change Setup message with the same Transaction ID.
	Final pseudo state: the IUT is modifying a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.2.4.2.2   AT Initiated Connection Modification

TP/AP/COC/CM/BV-004	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized and a connection is established with the Tester. Check that: upon receiving a valid Connection Change Init message, the IUT replies to the LT with a Connection Change Setup message. Final pseudo state: the IUT is modifying a connection.

TP/AP/COC/CM/BV-005	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT has received a valid Connection Change Init message and replied to the LT with a valid Connection Change Setup message.
	Check that: upon receiving a valid Connection Change Ack message, the IUT:
	  1) Starts T_RlcConnectionChangeAck.
	  2) Considers the connection as modified.
	Final pseudo state: the IUT is operational and the connection continues as modified.

TP/AP/COC/CM/BV-006	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, has a valid connection with the Tester, has received a Connection Change Init message, and then sent a Connection Change Setup message and started T_RlcConnectionChangeSetup. Check that: upon receiving a Connection Change Init message during this timer's duration, the IUT retransmits another valid Connection Change Setup message with the same Transaction ID. Final pseudo state: the IUT is modifying a connection.

TP/AP/COC/CM/BV-007	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has a valid connection with the Tester, has received a Connection Change Init message, then sent a Connection Change Setup message and started T_RlcConnectionChangeSetup.
	Check that: each time the IUT receives a Connection Change Init message during this timer's duration:
	  1) The IUT retransmits another valid Connection Change Setup message with the same Transaction ID.
	  2) And restarts T_ RlcConnectionChangeSetup upon sending this Setup message.
	Final pseudo state: the IUT is modifying a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur

TP/AP/COC/CM/BV-008	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, has a valid connection with the Tester, has received a valid Connection Change Init message, has transmitted a Connection Change Setup message, and started T_RlcConnectionChangeSetup. Check that: after T_RlcConnectionChangeSetup expires without receiving any message; the IUT retransmits another valid Connection Change Setup message with the same Transaction ID. Final pseudo state: the IUT is modifying a connection.

TP/AP/COC/CM/BV-009	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has a valid connection with the Tester, has received a valid Connection Change Init message, has transmitted a Connection Change Setup message, and started T_RlcConnectionChangeSetup.
	Check that: each time T_RlcConnectionChangeSetup expires without the IUT having received a Connection Change Ack message, the IUT:
	  1) Restarts T_RlcConnectionChangeSetup.
	  2) And retransmits another valid Connection Change Setup message with the same Transaction ID.
	Final pseudo state: the IUT is modifying a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.2.4.3 Connection Termination

5.2.4.3.1 AP Initiated Connection Termination

TP/AP/COC/CT/BV-000	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized and a connection is established with the Tester. Check that: to release a connection, the IUT sends a valid Connection Deletion Init message. Final pseudo state: the IUT is releasing a connection.

TP/AP/COC/CT/BV-001	Reference: TS 102 000 [1], clause 13.4.4.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, a connection is established with the Tester, and IUT has transmitted a valid Connection Deletion Init message.
	Check that: upon receiving a valid Connection Deletion Ack message, the IUT:
	  1) Starts T_RlcConnectionDeletionAck.
	  2) Considers the connection released.
	Final pseudo state: the IUT is operational and the connection no longer exists.

TP/AP/COC/CT/BV-002	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, has a valid connection with the Tester, has transmitted a Connection Deletion Init message, and started T_RlcConnectionDeletionInit. Check that: upon T_ RlcConnectionDeletionInit expiry without receiving a Connection Deletion Ack message, the IUT retransmits another valid Connection Deletion Init message with the same Transaction ID. Final pseudo state: the IUT is releasing a connection.

TP/AP/COC/CT/BV-003	Reference: TS 102 000 [1], clause 13.4.4.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized, has a valid connection with the Tester, has transmitted a Connection Deletion Init message, and started T_ RlcConnectionDeletionInit.
	Check that: each time T_ RlcConnectionDeletionInit expires without the IUT having received a Connection Deletion Init message, the IUT:
	  1) Retransmits another valid Connection Deletion Init message with the same Transaction ID.
	  2) And restarts T_ RlcConnectionDeletionInit upon sending this message.
	Final pseudo state: the IUT is releasing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.2.4.3.2   AT Initiated Connection Termination

TP/AP/COC/CT/BV-004	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized and a connection is established with the Tester. Check that: upon receiving a valid Connection Deletion Init message, the IUT replies to the LT with a Connection Deletion Ack message and considers the connection deleted. Final pseudo state: the IUT is releasing a connection.
TP/AP/COC/CT/BV-005	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized, a connection is established with the Tester, and the IUT has received a valid Connection Deletion Init message and then sent a valid Connection Deletion Ack message and started T_RlcConnectionDeletionAck. Check that: upon T_RlcConnectionDeletionAck expiry, the IUT considers the transaction ID available for another transaction. Final pseudo state: the IUT is operational and the connection no longer exists.
TP/AP/COC/CT/BV-006	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AP. Tester is the AT. IUT is initialized; a connection is established with the Tester; and the IUT has received a valid Connection Deletion Init message, then sent a valid Connection Deletion Ack message and started T_ RlcConnectionDeletionAck. Check that: upon receiving a Connection Deletion Init message, the IUT transmits a valid Connection Deletion Ack message with the same Transaction ID. Final pseudo state: the IUT is releasing a connection.

TP/AP/COC/CT/BV-007	Reference: TS 102 000 [1], clause 13.4.4.
	Initial condition: IUT is the AP. Tester is the AT.
	IUT is initialized; a connection is established with the Tester; and the IUT has received a valid Connection Deletion Init message, then sent a valid Connection Deletion Ack message and started T_ RlcConnectionDeletionAck.
	Check that: each time, upon receiving a Connection Deletion Init message, the IUT:
	  1) Transmits a valid Connection Deletion Ack message with the same Transaction ID.
	  2) Restarts T_RlcConnectionDeletionAck upon sending this message.
	Final pseudo state: the IUT is releasing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.2.4.4   Multicast Connections

TP/AP/COC/MC/BV-000	Reference: TS 102 000 [1], clause 13.5. Initial condition: IUT is the AP. Tester is multiple ATs. IUT is initialized. Check that: to establish a multicast connection, the IUT establishes a Downlink unicast connection with each AT included in the multicast group assigning to each connection the same CID. Final pseudo state: the IUT is operational and a multicast group is formed.

5.3   Test purposes for AT

5.3.1   Initialization Control

5.3.1.1   Frequency scanning

5.3.1.1.1   Frequency scanning during first initialization

TP/AT/INC/FS/BV-000	Reference: TS 102 000 [1], clause 10.3.1. Initial condition: IUT is the AT. Tester is the AP. IUT is initializing for the first time. The IUT begins the downlink frequency-scanning step. Check that: after powering up or starting the IUT, the IUT scans all allowed frequencies, orders them in descending signal strength order, and selects the frequency with the strongest signal power. Final pseudo state: the IUT has finished the downlink frequency-scanning step. NOTE: Test strategy could be to send at least two signals with different power, go through synchronization and APC identification, and then first send a Ranging Invitation message and a Ranging Grant on the weakest frequency. If the AT responds, the AT fails this Test Purpose. If the AT does not respond, then send a Ranging Invitation message and a Ranging on the strongest frequency. If the AT responds, the AT passes.

5.3.1.1.2   Frequency scanning during re-initialization

TP/AT/INC/FS/BV-001	Reference: TS 102 000 [1], clause 10.3.2. Initial condition: IUT is the AT. Tester is the AP. IUT has previously accomplished initialization. The IUT is required to re-initialize and must begin the downlink frequency-scanning step. Check that: the IUT selects the downlink frequency determined during the previous initialization. Final pseudo state: the IUT has finished the downlink frequency-scanning step for re-initialization.
TP/AT/INC/FS/BV-002	Reference: TS 102 000 [1], clause 10.3.2. Initial condition: IUT is the AT. Tester is the AP. IUT has previously accomplished initialization. The IUT is required to re-initialize and must begin the downlink frequency-scanning step. The frequency determined during the previous initialization is no longer available. Check that: the IUT goes to the next frequency in the ordered list determined during frequency scanning during first initialization. Final pseudo state: the IUT has finished the downlink frequency-scanning step for re-initialization.

5.3.1.2 Synchronization Acquisition

TP/AT/INC/SA/BV-000	Reference: TS 102 000 [1], clause 10.3.2. Initial condition: IUT is the AT. Tester is the AP. The IUT has accomplished downlink frequency scanning. Check that: after receiving valid downlink frames, the IUT synchronizes, in time and frequency, to the preamble of the downlink frame and successfully decodes the control zone. Final pseudo state: the IUT's PHY layer has synchronized with the received frame's preamble. NOTE: Test strategy could be to send several valid downlink frames and continue to APC identification with a valid APC-ID. If APC identification occurs, provoke a DL sync loss, which will cause the old frequency to be used and synchronization to occur again. Again send several valid downlink frames and continue to APC identification but this time with an invalid APC-ID. The bad APC-ID should cause automatic synchronization leading to a pass verdict. Otherwise, a fail or inconclusive verdict.
TP/AT/INC/SA/BV-001	Reference: TS 102 000 [1], figure 42. Initial condition: IUT is the AT. Tester is the AP. The IUT has accomplished the downlink frequency scanning, started the timer T_synchronization, and received downlink frames with a control zone that cannot be decoded. Check that: upon decoding failure and expiration of this timer, the IUT selects the next powerful frequency determined during the frequency scanning. Final pseudo state: the IUT re-starts the synchronization step. NOTE: Test strategy could be to send an incorrectly coded control zone in a frame of the most strongest frequency and a correctly coded frame in the next strongest frequency. Verdict would be pass if Ranging Invitations/Grants are accepted but with a delay corresponding to T_sychronization plus some delta.

5.3.1.3 APC Identification

TP/AT/INC/SI/BV-000	Reference: TS 102 000 [1], clause 10.3.3. Initial condition: IUT is the AT. Tester is the AP. The IUT has accomplished the synchronization acquisition step. Check that: after having received a frame's control zone containing an APC-ID the same as an APC-ID stored in its non-volatile memory, the IUT proceeds with initialization. Final pseudo state: the IUT has accomplished the APC identification step. NOTE: Test strategy could be first send a bad APC and see if the IUT responds to a Ranging Grant after a Ranging Invitation message. If so, it fails. Then turn off and back on the IUT and then send the correct APC-ID to see if the IUT responds to a Ranging Invitation with pursuant Grant. If so, it passes. If not, it fails unless some other reason could lead to an Inconclusive verdict.

5.3.1.4 UL and DL Parameters Acquisition

TP/AT/INC/PA/BV-000	Reference: SDL InitializationControl_2004_09_22. Initial condition: IUT is the AT. Tester is the AP. The IUT has accomplished the APC identification step. Check that: the IUT waits for GBI messages. Final pseudo state: the IUT has completed the parameters acquisition. NOTE: A test strategy could be to check the Phy Mode used in the first Ranging Req received. Or a fail at any time if any of the parameters is not incorporated into the AT's functioning during further tests.
TP/AT/INC/PA/BV-001	Reference: TS 102 000 [1], clause 10.3.4. Initial condition: IUT is the AT. Tester is the AP. The IUT has accomplished the APC identification step. Check that: when the TE transmits a Ranging Grant, the IUT does nothing and remains in the same state.

5.3.1.5   Ranging

TP/AT/INC/RA/BV-000	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT has completed the parameters acquisition step and is waiting for a Ranging Invitation. Check that: when the TE transmits a Ranging Grant, the IUT sends no message and does not change state. Final pseudo state: the IUT has is waiting for a Ranging Invitation.
TP/AT/INC/RA/BV-001	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT has completed the parameters acquisition step and is waiting for a Ranging Invitation. Check that: when the TE transmits a Ranging Invitation message followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Request message for the grant at minimum power with the Ranging Status field set to txPowerMin. Final pseudo state: the IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-002	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. The previous Ranging Grant was transmitted at minimum power with the Ranging Status field set to txPowerMin. Check that: when the TE transmits a Ranging Grant followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Request message for the grant at minimum power + 1 power level step with the Ranging Status field set to txPowerBetween. Final pseudo state: IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-003	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. The previous Ranging Grant was transmitted at maximum power – 1 power level step with the Ranging Status field set to txPowerBetween. Check that: when the TE transmits a Ranging Grant followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Request message for the grant at maximum power with the Ranging Status field set to txPowerMax. Final pseudo state: IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-004	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. The previous Ranging Grant was transmitted at maximum power with the Ranging Status field set to txPowerMax. Check that: when the TE transmits a Ranging Grant followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Request message for the grant at minimum power with the Ranging Status field set to txPowerMin. Final pseudo state: IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-005	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. Check that: when the TE transmits a Ranging Invitation message, the IUT does nothing and remains in the same state. Final pseudo state: the IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-006	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. Check that: when the TE transmits a Normal Grant, the IUT does nothing and remains in the same state. Final pseudo state: the IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-007	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. Check that: when the TE transmits a valid Ranging Continue message with power and timing adjustments followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Request message for the grant incorporating the power and timing adjustments. Final pseudo state: the IUT continues adjusting power and timing.
TP/AT/INC/RA/BV-008	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. Check that: when the TE transmits a valid Ranging Continue message with power and timing adjustments followed by a Ranging Invitation and then a Ranging Grant, the IUT transmits a Ranging Request message for the grant at minimum power with the Ranging Status field set to txPowerMin. Final pseudo state: the IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-009	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. Check that: when the TE transmits a valid Ranging Success message with power and timing adjustments followed by a Normal Grant in a later frame, the IUT transmits a Ranging Ack message for the normal grant incorporating the power and timing adjustments. Final pseudo state: Ranging is completed.

TP/AT/INC/RA/BV-010	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. Check that: when the TE transmits a valid Ranging Success message with power and timing adjustments followed by a Ranging Invitation message then Ranging Grant in a later frame, the IUT transmits a Ranging Req message for the grant at minimum power with the Ranging Status field set to txPowerMin. Final pseudo state: the IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-011	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT is waiting for another Ranging Grant. Check that: when the TE transmits a valid Ranging Success message with power and timing adjustments followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Req message for the grant with transmission power at one step higher than that for the previous Ranging Req message. Final pseudo state: the IUT is waiting for another Ranging Grant. NOTE: If stepping up power goes over the maximum power level, then transmit at the minimum power level.
TP/AT/INC/RA/BV-012	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT continues adjusting power and timing. Check that: when the TE transmits a valid Ranging Invitation message followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Req message for the grant at minimum power with the Ranging Status field set to txPowerMin. Final pseudo state: the IUT is waiting for another Ranging Grant.
TP/AT/INC/RA/BV-013	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT continues adjusting power and timing. Check that: when the TE transmits a Ranging Grant, the IUT transmits a Ranging Req message for the grant with transmission power at one step higher than that for the previous Ranging Req message. Final pseudo state: the IUT is waiting for another Ranging Grant. NOTE: If stepping up power goes over the maximum power level, then transmit at the minimum power level.
TP/AT/INC/RA/BV-014	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT continues adjusting power and timing. Check that: when the TE transmits a Normal Grant, the IUT does nothing and remains in the same state. Final pseudo state: the IUT continues adjusting power and timing.
TP/AT/INC/RA/BV-015	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT continues adjusting power and timing. Check that: when the TE transmits a valid Ranging Continue message with power and timing adjustments followed by a Ranging Grant in a later frame, the IUT transmits a Ranging Request message for the grant incorporating the power and timing adjustments. Final pseudo state: the IUT continues adjusting power and timing.
TP/AT/INC/RA/BV-016	Reference: SDL InitializationControl_2004_09_22. Initial condition: the IUT continues adjusting power and timing. Check that: when the TE transmits a valid Ranging Success message with power and timing adjustments followed by a Normal Grant in a later frame, the IUT transmits a Ranging Ack message for the normal grant incorporating the power and timing adjustments. Final pseudo state: Ranging is completed.

5.3.1.6   Physical Capabilities Negotiation

TP/AT/INC/PN/BV-000	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed ranging. Check that: upon receiving a Physical Capabilities Request message, the IUT transmits a valid Physical Capabilities Information message. Final pseudo state: the IUT continues Physical Capabilities Negotiation.
TP/AT/INC/PN/BV-001	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Physical Capabilities Negotiation and has transmitted a valid Physical Capabilities Information message. Check that: after receiving a Physical Capabilities Confirmation message, the IUT transmits no message and remains in the same state for the duration of timer T_PhyCapabilitiesCnf. Final pseudo state: the IUT has completed Physical Capabilities Negotiation.

TP/AT/INC/PN/BV-002	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Physical Capabilities Negotiation and has transmitted a valid Physical Capabilities Information message. Check that: after receiving another Physical Capabilities Request message, the IUT transmits another valid Physical Capabilities Information message. Final pseudo state: the IUT continues Physical Capabilities Negotiation.
TP/AT/INC/PN/BV-003	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed initialization. The IUT has received a Physical Capabilities Request message and transmitted a valid Physical Capabilities Information message. Check that: after the expiration of timer T_PhyCapabilitiesInfo, the IUT retransmits a valid Physical Capabilities Information message. Final pseudo state: the IUT continues Physical Capabilities Negotiation.
TP/AT/INC/PN/BV-004	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Physical Capabilities Negotiation, has transmitted a valid Physical Capabilities Information message, received a Physical Capabilities Confirmation message, and started timer T_PhyCapabilitiesCnf. Check that: after receiving another Physical Capabilities Confirmation message before the timer expires, the IUT transmits no message, restarts T_PhyCapabilitiesCnf, and remains in the same state for the duration of timer T_PhyCapabilitiesCnf. Final pseudo state: the IUT has completed Physical Capabilities Negotiation.
TP/AT/INC/PN/BV-005	Reference: TS 102 000 [1], clause 10.5.1. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Physical Capabilities Negotiation, has transmitted a valid Physical Capabilities Information message, received a Physical Capabilities Confirmation message, and started timer T_PhyCapabilitiesCnf. Check that: each time receiving another Physical Capabilities Confirmation message before the timer expires, the IUT transmits no message and restarts the timer T_PhyCapabilitiesCnf. Final pseudo state: the IUT continues Physical Capabilities Negotiation.

5.3.1.7 Other Capabilities Negotiation

TP/AT/INC/OC/BV-000	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed Authentication. Check that: upon receiving an Other Capabilities Request message, the IUT transmits a valid Other Capabilities Information message. Final pseudo state: the IUT continues Other Capabilities Negotiation.
TP/AT/INC/OC/BV-001	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Other Capabilities Negotiation and has transmitted a valid Other Capabilities Information message. Check that: after receiving an Other Capabilities Confirmation message, the IUT transmits no message and remains in the same state for the duration of timer T_OtherCapabilitiesCnf. Final pseudo state: the IUT has completed Physical Capabilities Negotiation.
TP/AT/INC/OC/BV-002	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Other Capabilities Negotiation and has transmitted a valid Other Capabilities Information message. Check that: after receiving another Other Capabilities Request message, the IUT transmits another valid Other Capabilities Information message. Final pseudo state: the IUT continues Other Capabilities Negotiation.
TP/AT/INC/OC/BV-003	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed initialization. The IUT has received an Other Capabilities Request message and transmitted a valid Other Capabilities Information message. Check that: after the expiration of timer T_ OtherCapabilitiesInfo, the IUT retransmits a valid Other Capabilities Information message. Final pseudo state: the IUT continues Other Capabilities Negotiation.
TP/AT/INC/OC/BV-004	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Other Capabilities Negotiation, has transmitted a valid Other Capabilities Information message, received an Other Capabilities Confirmation message, and started timer T_OtherCapabilitiesCnf. Check that: after receiving another Other Capabilities Confirmation message before the timer expires, the IUT transmits no message, restarts T_OtherCapabilitiesCnf and remains in the same state for the duration of timer T_ OtherCapabilitiesCnf. Final pseudo state: the IUT has completed Other Capabilities Negotiation.

TP/AT/INC/OC/BV-005	Reference: TS 102 000 [1], clause 10.5.3. Initial condition: IUT is the AT. Tester is the AP. The IUT is in Other Capabilities Negotiation, has transmitted a valid Other Capabilities Information message, received an Other Capabilities Confirmation message, and started timer T_OtherCapabilitiesCnf. Check that: each time receiving another Other Capabilities Confirmation message before the timer expires, the IUT transmits no message and restarts the timer T_OtherCapabilitiesCnf and remains in the same state. Final pseudo state: the IUT continues Other Capabilities Negotiation.

5.3.2   Radio Resource Control

5.3.2.1   Link Supervision

TP/AT/RRC/LS/BV-000	Reference: TS 102 000 [1], clause 11.2.2. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcRangingInvitation message and gives ranging grants to the IUT in a frame following that of the Invitation message. The IUT has traffic information to transmit to the tester. Check that: the IUT deletes all connection and security settings and starts re-initialization.
TP/AT/RRC/LS/BV-001	Reference: TS 102 000 [1], clause 11.2.2. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester gives ranging grants to the IUT without transmitting an RlcRangingInvitation message. Check that: the IUT ignores the ranging grants.
TP/AT/RRC/LS/BV-002	Reference: TS 102 000 [1], clause 11.2.2. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcRangingInvitation message and gives normal grants to the IUT. Check that: the IUT ignores the normal grants.
TP/AT/RRC/LS/BV-003	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcInitializationCmd message with InitialisationCmd equal to rejectedFromNetwork. Check that: the IUT stops all transmissions and receptions and tries not to synchronize to the network again.
TP/AT/RRC/LS/BV-004	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcInitializationCmd message with InitialisationCmd equal to rejectedFromChannel. Check that: the IUT stops all transmissions and receptions and tries not to synchronize to the same RF channel again.
TP/AT/RRC/LS/BV-005	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcInitializationCmd message with InitialisationCmd equal to firstInitialization. Check that: the IUT stops all transmissions and performs a first initialization procedure on the same carrier, started with RlcRangingInvitation message.
TP/AT/RRC/LS/BV-006	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcInitializationCmd message with InitialisationCmd equal to transmissionStop. Check that: the IUT stops all transmissions and continues to receive and waits for further commands.
TP/AT/RRC/LS/BV-007	Reference: TS 102 000 [1], clause 11.2.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcInitializationCmd message with InitialisationCmd equal to transmissionReStart. Check that: the IUT replies to all grants.
TP/AT/RRC/LS/BV-008	Reference: TS 102 000 [1], clause 11.2.2. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcRangingInvitation message and gives a ranging grant to the IUT in the same frame as that of the Invitation message. The IUT has traffic information to transmit to the tester. Check that: the IUT deletes all connection and security settings and starts re-initialization.

5.3.2.2   Change of PHY Mode, ATPC and ATTC

TP/AT/RRC/PT/BV-000	Reference: TS 102 000 [1], clause 11.3.2. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an uplink grant. The IUT has no traffic or management information to transmit to the tester. Check that: the IUT transmits a MAC dummy PDU pursuant to the grant.
TP/AT/RRC/PT/BV-001	Reference: TS 102 000 [1], clause 11.3.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. Check that: the IUT transmits an RlcMeasurementReportData message after the expiration of the period given in PeriodReport of the DL GBI message.
TP/AT/RRC/PT/BV-002	Reference: TS 102 000 [1], clause 11.3.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcMeasurementReportCriterium message with a valid PeriodReport parameter. The PeriodReport has expired. Check that: the IUT transmits an RlcMeasurementReportData message after the expiration of the period given in PeriodReport of the previously received RlcMeasurementReportCriterium message.
TP/AT/RRC/PT/BV-003	Reference: TS 102 000 [1], clause 11.3.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. Check that: the IUT transmits an RlcMeasurementReportData message when certain C/(N+I) thresholds are crossed.
TP/AT/RRC/PT/BV-004	Reference: TS 102 000 [1], clause 11.3.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcMeasurementReportCriterium message with a valid PeriodReport parameter stopping the measurement. The Previous PeriodReport has expired. Check that: the IUT does not transmit an RlcMeasurementReportData message.
TP/AT/RRC/PT/BV-005	Reference: TS 102 000 [1], clause 11.3.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcMeasurementReportCriterium message with a valid PeriodReport parameter stopping the measurement. The Previous PeriodReport has expired. The IUT has ceased transmitting RlcMeasurementReportData messages. Check that: the IUT transmits an RlcMeasurementReportData message when certain C/(N+I) thresholds are crossed.
TP/AT/RRC/PT/BV-006	Reference: TS 102 000 [1], clause 11.3.3. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The tester has transmitted an RlcMeasurementReportCriterium message with a valid PeriodReport parameter restarting the measurement. The PeriodReport has expired. Check that: the IUT transmits an RlcMeasurementReportData message after the expiration of the period given in PeriodReport of the previously received RlcMeasurementReportCriterium message.
TP/AT/RRC/PT/BV-007	Reference: TS 102 000 [1], clause 11.3.4. Initial condition: AT is the IUT. The tester is the AP. The IUT has initialized and connected its peer. The tester has transmitted an RlcDownlinkPhyModeChange message. Check that: the IUT transmits an RlcDownlinkPhyModeChangeAck message.
TP/AT/RRC/PT/BV-008	Reference: TS 102 000 [1], clause 11.3.4. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. Conditions exist that cause AT to inform AP to allocate another PHY mode. Check that: the IUT transmits an RlcMeasurementReportData message with valid new DownlinkPhyMode wanted.
TP/AT/RRC/PT/BV-009	Reference: TS 102 000 [1], clause 11.3.4. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. Conditions exist that cause AT to inform AP to allocate another PHY mode. The IUT has transmitted an RlcMeasurementReportData message with valid new DownlinkPhyMode wanted. Check that: the IUT retransmits an RlcMeasurementReportData message if the timer T_MeasurementReportData expires.

TP/AT/RRC/PT/BV-010	Reference: TS 102 000 [1], clause 11.3.5. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The IUT has received an RlcUplinkCorrection message with the request for a report parameter. Check that: the IUT transmits an RlcMeasurementReportData message.

5.3.2.3   Load Levelling (Inter-Carrier Handover)

TP/AT/RRC/LL/BV-000	Reference: TS 102 000 [1], clause 11.6. Initial condition: AT is the IUT. The tester is the AP. The IUT has been initialized and connected with its peer. The IUT has received an RlcHandoverCmd message. Check that: the IUT transmits an RlcHandoverAck message.

5.3.3   Security Control

5.3.3.1   Initial Authentication

TP/AT/SEC/IA/BV-000	Reference: TS 102 000 [1], clause 12.2.1. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 1 security measures are in effect. The IUT has received an RlcAuthCertificateReq message from the tester. Check that: the IUT ignores the message.
TP/AT/SEC/IA/BV-001	Reference: TS 102 000 [1], clause 12.2.1. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 1 security measures are in effect. The IUT has received an RlcAuthKeyCmd message from the tester. Check that: the IUT ignores the message.
TP/AT/SEC/IA/BV-002	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 2 or Phase 3 security measures are in effect. The IUT has received an RlcAuthCertificateReq message from the tester. Check that: the IUT transmits a valid RlcAuthCertificateInfo message.
TP/AT/SEC/IA/BV-003	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 2 or Phase 3 security measures are in effect. The tester has started T_AuthCertificateReq and transmitted an RlcAuthCertificateReq message. The IUT then transmitted a valid RlcAuthCertificateInfo message. After T_AuthCertificateReq has expired, the tester then transmits another RlcAuthCertificateReq message identical to the first. Check that: the IUT transmits another valid RlcAuthCertificateInfo message.
TP/AT/SEC/IA/BV-004	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 2 or Phase 3 security measures are in effect. The IUT has received an RlcAuthCertificateReq message from the tester and then transmitted a valid RlcAuthCertificateInfo message. The IUT then receives a valid RlcAuthKeyCmd message from the tester. Check that: the IUT transmits a valid RlcAuthKeyAck message.
TP/AT/SEC/IA/BV-005	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 2 or Phase 3 security measures are in effect. The IUT has received an RlcAuthCertificateReq message from the tester and then transmitted a valid RlcAuthCertificateInfo message. Then, the tester has started T_AuthKeyCmd and transmitted a valid RlcAuthKeyAck message. After T_AuthKeyCmd has expired, the tester then transmits another RlcAuthKeyCmd message identical to the first. Check that: the IUT transmits another valid RlcAuthKeyAck message.
TP/AT/SEC/IA/BV-006	Reference: TS 102 000 [1], clause 12.3.2. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 2 or Phase 3 security measures are in effect. The IUT has received an RlcAuthCertificateReq message from the tester and then transmitted a valid RlcAuthCertificateInfo message. The IUT then receives an RlcAuthKeyCmd message with an invalid HmacOfAuthKey. Check that: the IUT transmits a valid RlcAuthKeyNack message.

5.3.3.2   Reauthentication

TP/AT/SEC/RE/BV-000	Reference: TS 102 000 [1], clause 12.2.1. Initial condition: IUT is the AT. Tester is the AP. IUT has completed initialization. Phase 1 security measures are in effect. The tester has transmitted a valid RlcAuthKeyCmd message. Check that: the IUT ignores the message.
TP/AT/SEC/RE/BV-001	Reference: TS 102 000 [1], clause 12.3.3. Initial condition: IUT is the AT. Tester is the AP. IUT has completed initialization. Phase 2 or 3 security measures are in effect. The tester has transmitted a valid RlcAuthKeyCmd message. Check that: the IUT transmits a valid RlcAuthKeyAck message.
TP/AT/SEC/RE/BV-002	Reference: TS 102 000 [1], clause 12.3.3. Initial condition: IUT is the AT. Tester is the AP. IUT has completed initialization. Phase 2 or 3 security measures are in effect. The tester has transmitted an RlcAuthKeyCmd message with an invalid Hmac. Check that: the IUT transmits a valid RlcAuthKeyNack message.
TP/AT/SEC/RE/BV-003	Reference: TS 102 000 [1], clause 12.3.3. Initial condition: IUT is the AT. Tester is the AP. IUT has completed initialization. Phase 2 or 3 security measures are in effect. The tester has transmitted a valid RlcAuthKeyCmd message and started a timer of T_AuthKeyCmd duration . The IUT then transmits a valid RlcAuthKeyAck message. The timer then expires and the tester sends another valid RlcAuthKeyCmd message. Check that: the IUT transmits another valid RlcAuthKeyAck message with the same parameters.

5.3.3.3   Key Allocation

TP/AT/SEC/KA/BV-000	Reference: TS 102 000 [1], clause 12.2.1. Initial condition: IUT is the AT. Tester is the AP. IUT has completed physical capabilities negotiation. Phase 1 security measures are in effect. The tester has transmitted a valid RlcTekAllocationFirst message. Check that: the IUT ignores the message.
TP/AT/SEC/KA/BV-001	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. First Authentication is completed. The tester has transmitted a valid RlcTekAllocationFirst message. Check that: the IUT transmits a valid RlcTekAllocationFirstAck message.
TP/AT/SEC/KA/BV-002	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. First Authentication is completed. The tester has transmitted a RlcTekAllocationFirst message with an invalid Hmac of a Tek. Check that: the IUT transmits a valid RlcTekAllocationFirstNack message.
TP/AT/SEC/KA/BV-003	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. First Authentication is completed. The tester has transmitted a valid RlcTekAllocationFirst message. The IUT has then transmitted a valid RlcTekAllocationFirstAck message. The tester has then again transmitted another valid RlcTekAllocationFirst message. Check that: the IUT transmits another valid RlcTekAllocationFirstAck message.
TP/AT/SEC/KA/BV-004	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AT. Tester is the AP. The IUT has completed physical capabilities negotiation. Phase 2 or 3 security measures are in effect. The IUT has a connection to setup. First Authentication is completed. The tester has transmitted a valid RlcTekAllocationFirst message. The IUT has then transmitted a valid RlcTekAllocationFirstAck message and started T_TekAllocationFirstAck. Check that: the IUT starts connection setup after T_TekAllocationFirstAck expires.

5.3.3.4   Key Refresh

TP/AT/SEC/KR/BV-000	Reference: TS 102 000 [1], clause 12.2.1. Initial condition: IUT is the AT. Tester is the AP. Initialization is complete. A connection has also been setup. Data has been exchanged. Phase 1 security measures are in effect. The tester has transmitted a valid RlcTekAllocationRefresh message. Check that: the IUT ignores the message.
TP/AT/SEC/KR/BV-001	Reference: TS 102 000 [1], clause 12.4.3. Initial condition: IUT is the AT. Tester is the AP. Initialization is complete. A connection has also been setup. Data has been exchanged. Phase 2 or 3 security measures are in effect. The tester has transmitted a valid RlcTekAllocationRefresh message. Check that: the IUT transmits a valid RlcTekAllocationRefreshAck message.
TP/AT/SEC/KR/BV-002	Reference: TS 102 000 [1], clause 12.4.3. Initial condition: IUT is the AT. Tester is the AP. Initialization is complete. A connection has also been setup. Data has been exchanged. Phase 2 or 3 security measures are in effect. The tester has transmitted an RlcTekAllocationRefresh message with an invalid Hmac of the Tek. Check that: the IUT transmits a valid RlcTekAllocationRefreshNack message.
TP/AT/SEC/KR/BV-003	Reference: TS 102 000 [1], clause 12.4.3. Initial condition: IUT is the AT. Tester is the AP. Initialization is complete. A connection has also been setup. Data has been exchanged. Phase 2 or 3 security measures are in effect. The tester has transmitted a valid RlcTekAllocationRefresh message. The IUT has then transmitted a valid RlcTekAllocationRefreshAck message. The tester has then transmitted another valid RlcTekAllocationRefresh message identical to the first. Check that: the IUT transmits another valid RlcTekAllocationRefreshAck message identical to the first.

5.3.3.5   Traffic Encryption Keys Usage

TP/AT/SEC/KU/BV-000	Reference: TS 102 000 [1], clause 12.4.6. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 1 security measures are in effect. A U-plane is established between the IUT and the Tester. Check that: the IUT sends correctly encrypted unicast UL MAC data PDUs. The EKS and (TEK, IVP) shall be the same as those for the DL.
TP/AT/SEC/KU/BV-001	Reference: TS 102 000 [1], clause 12.4.6. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 1 security measures are in effect. A U-plane is established between the IUT and the Tester. The IUT is correctly encrypting unicast UL MAC data PDUs. The EKS and (TEK, IVP) are the same as those for the DL. The tester then increments the EKS modulo 4 in a DL frame. Check that: the IUT sends correctly encrypted unicast UL MAC data PDUs according to the new EKS within 1 000 frames of the DL frame containing the new EKS.
TP/AT/SEC/KU/BV-002	Reference: TS 102 000 [1], clause 12.4.6. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 1 security measures are in effect. A U-plane is established between the IUT and the Tester. The IUT is correctly encrypting unicast UL MAC data PDUs. The EKS and (TEK, IVP) are the same as those for the DL. The tester then changes the EKS to EKS + 2 modulo 4 in a DL frame . Check that: the IUT sends correctly encrypted unicast UL MAC data PDUs according to the new EKS within 1 000 frames of the DL frame containing the new EKS.
TP/AT/SEC/KU/BV-003	Reference: TS 102 000 [1], clause 12.4.6. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 1 security measures are in effect. A U-plane is established between the IUT and the Tester. The IUT is correctly encrypting unicast UL MAC data PDUs. The EKS and (TEK, IVP) are the same as those for the DL. The tester then changes the EKS to EKS + 3 modulo 4 in a DL frame . Check that: the IUT sends correctly encrypted unicast UL MAC data PDUs according to the new EKS within 1000 frames of the DL frame containing the new EKS.
TP/AT/SEC/KU/BV-004	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 2 security measures are in effect. A U-plane is established between the IUT and the Tester. Single-DES is active. Check that: the IUT sends correctly encrypted unicast UL MAC data PDUs. The EKS shall be EKSAllocated1 + 1 modulo 4 using (TEK, IVP)2.

TP/AT/SEC/KU/BV-005	Reference: TS 102 000 [1], clause 12.4.4. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 2 security measures are in effect. . A U-plane is established between the IUT and the Tester. Optional Triple-DES is active. Check that: the IUT sends correctly encrypted unicast UL MAC data PDUs. The EKS shall be EKSAllocated1 + 1 modulo 4 using (TEK, IVP)2.
TP/AT/SEC/KU/BV-006	Reference: TS 102 000 [1], clause 12.4.3. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 2 security measures are in effect. . A U-plane is established between the IUT and the Tester. The tester uses (TEK, IVP)n-2 to encode DL MAC data PDUs. The IUT uses(TEK, IVP)n-1 to encode UL MAC data PDUs. The tester then changes the EKS so that (TEK, IVP)n-1 encodes DL MAC data PDUs. Check that: the IUT continues using (TEK, IVP)n-1 to encode UL MAC data PDUs.
TP/AT/SEC/KU/BV-007	Reference: TS 102 000 [1], clause 12.4.3. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 2 security measures are in effect. . A U-plane is established between the IUT and the Tester. The tester uses (TEK, IVP)n-2 to encode DL MAC data PDUs. The IUT uses(TEK, IVP)n-1 to encode UL MAC data PDUs. The tester then changes the EKS so that (TEK, IVP)n-1 encodes DL MAC data PDUs. Check that: after receiving a valid RlcTekAllocation message, the IUT uses (TEK, IVP)n with the corresponding EKS to encode UL MAC data PDUs.
TP/AT/SEC/KU/BV-008	Reference: TS 102 000 [1], clause 12.4.7. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 3 security measures are in effect. A U-plane is established between the IUT and the Tester. The IUT is part of a multicast group. Single-DES is active. Check that: the IUT correctly decrypts multicast DL MAC data PDUs. The decryption EKS shall be EKSAllocated1 modulo 4 using (TEK, IVP)1.
TP/AT/SEC/KU/BV-009	Reference: TS 102 000 [1], clause 12.4.7. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 3 security measures are in effect. A U-plane is established between the IUT and the Tester. The IUT is part of a multicast group. Optional Triple-DES is active. Check that: the IUT correctly decrypts multicast DL MAC data PDUs. The decryption EKS shall be EKSAllocated1 modulo 4 using (TEK, IVP)1.
TP/AT/SEC/KU/BV-010	Reference: TS 102 000 [1], clause 12.4.7. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 3 security measures are in effect. . A U-plane is established between the IUT and the Tester. The IUT is part of a multicast group. The tester uses (TEK, IVP)n-2 to encode DL MAC data PDUs. The IUT and tester then successfully complete an RlcTekAllocationRefresh procedure. The tester does not change the DL EKS. Check that: after transmitting the RlcTekAllocationRefreshAck message, the IUT continues to correctly decrypt multicast DL MAC data PDUs using the (TEK, IVP)n-2.
TP/AT/SEC/KU/BV-011	Reference: TS 102 000 [1], clause 12.4.7. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 3 security measures are in effect. . A U-plane is established between the IUT and the Tester. The IUT is part of a multicast group. The tester uses (TEK, IVP)n-2 to encode DL MAC data PDUs. The IUT and tester then successfully complete an RlcTekAllocationRefresh procedure for (TEK, IVP)n and the corresponding EKS. The tester then changes the EKS so that (TEK, IVP)n-1 encodes DL MAC data PDUs. Check that: after receiving the new EKS associated with (TEK, IVP)n-1, the IUT correctly decrypts multicast DL MAC data PDUs pursuant to the new EKS and (TEK, IVP)n-1.
TP/AT/SEC/KU/BV-012	Reference: TS 102 000 [1], clause 12.2.2 Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. Phase 1, 2, or 3 security measures are in effect. . A U-plane is established between the IUT and the Tester. The tester transmits an RlcGeneralBroadcastInformation message with the EncryptionMode field set to OFF. Check that: the IUT ceases encryption of all UL data PDUs.

5.3.4   Connection Control

5.3.4.1   Connection Establishment

5.3.4.1.1   AP Initiated Connection Establishment

TP/AT/COC/CE/BV-000	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized. Check that: upon receiving the Connection Addition Setup message, the IUT replies to the LT with a Connection Addition Ack message, considers the connection established, and processes DL data. Final pseudo state: the connection is established.
TP/AT/COC/CE/BV-001	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and has RLC DATA to transmit in UL. Upon receiving the Connection Addition Setup message, the IUT replies to the LT with a Connection Addition Ack message. T_ConnectionAdditionAck has started. Check that: when the TE transmits a Normal Grant during T_ConnectionAdditionAck, the IUT transmits the UL RLC DATA using the grant. Final pseudo state: the IUT is establishing a connection.
TP/AT/COC/CE/BV-002	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and has received a Connection Addition Setup message and then sent an Connection Addition Ack message and started T_RlcConnectionAdditionAck. Check that: upon expiry of T_ RlcConnectionAdditionAck , the IUT considers the connection established Final pseudo state: the connection is established.
TP/AT/COC/CE/BV-003	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized, has received a Connection Addition Setup message, and then transmitted a Connection Addition Ack message and started T_RlcConnectionAdditionAck. Check that: upon receiving another Connection Addition Setup message within this timer's duration, the IUT transmits another valid Connection Addition Ack message with the same Transaction ID. Final pseudo state: the IUT is establishing a connection.

TP/AT/COC/CE/BV-004	Reference: TS 102 000 [1], clause 13.4.2.2.
	Initial condition: IUT is the AT. Tester is the AP.
	IUT is initialized, has received a Connection Addition Setup message, then transmitted a Connection Addition Ack message and started T_RlcConnectionAdditionAck.
	Check that: each time the IUT receives a Connection Addition Setup message during this timer's duration, the IUT:
	  1) Transmits another valid Connection Addition Ack message with the same Transaction ID.
	  2) And restarts T_RlcConnectionAdditionAck upon sending this Connection Addition Ack message.
	Final pseudo state: the IUT is establishing a connection.
	NOTE: The number of these repetitions is unlimited in the specification.

5.3.4.1.2   AT Initiated Connection Establishment

TP/AT/COC/CE/BV-005	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized. Check that: to establish a connection, the IUT sends a valid Connection Addition Init message. Final pseudo state: the IUT is establishing a connection.
TP/AT/COC/CE/BV-006	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and has sent a valid Connection Addition Init message. Check that: upon receiving a valid Connection Addition Setup message, the IUT transmits to the LT a valid Connection Addition Ack message, considers the connection established, and processes DL data. Final pseudo state: the IUT is establishing a connection.
TP/AT/COC/CE/BV-007	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized, has sent a valid Connection Addition Init message, and has RLC DATA to transmit in UL. Upon receiving the Connection Addition Setup message, the IUT replies to the LT with a Connection Addition Ack message. T_ConnectionAdditionAck has started. Check that: when the TE transmits a Normal Grant during T_ConnectionAdditionAck, the IUT transmits the UL RLC DATA using the grant. Final pseudo state: the IUT is establishing a connection.
TP/AT/COC/CE/BV-008	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized, has sent a valid Connection Addition Init message, then received a valid Connection Addition Setup message, and then transmitted a valid Connection Addition Ack message and started T_RlcConnectionAdditionAck. Check that: upon this timer's, the IUT considers the connection established. Final pseudo state: the IUT is operational and the connection is established.
TP/AT/COC/CE/BV-009	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized. IUT is initialized, has sent a valid Connection Addition Init message and started T_RlcConnectionAdditionInit. Check that: upon this timer's expiry and the IUT having received no valid Connection Addition Setup message with this timer's duration, the IUT retransmits the Connection Addition Init message with the same Transaction ID. Final pseudo state: the IUT is establishing a connection.

TP/AT/COC/CE/BV-010	Reference: TS 102 000 [1], clause 13.4.2.1.
	Initial condition: IUT is the AT. Tester is the AP.
	The IUT is initialized and has sent a valid Connection Addition Init message.
	Check that: each time T_RlcConnectionAddInit expires without the reception of a valid Connection Addition Setup message within the timer's duration, the IUT:
	  1) Retransmits the Connection Addition Init message with the same Transaction ID;
	  2) And restarts T_RlcConnectionAddInit upon sending this message.
	Final pseudo state: the IUT is establishing a connection.
	NOTE: The number of these repetitions is unlimited in the specification.

TP/AT/COC/CE/BV-011	Reference: TS 102 000 [1], clause 13.4.2.1. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized, has sent a valid Connection Addition Init message and received a valid Connection Addition Setup message to which it transmits a valid Connection Addition Ack message and starts T_ RlcConnectionAdditionAck. Check that: after receiving a valid Connection Addition Setup message, the IUT transmits a valid Connection Addition Ack message with the same Transaction ID. Final pseudo state: the IUT is establishing a connection.

TP/AT/COC/CE/BV-012	Reference: TS 102 000 [1], clause 13.4.2.1.
	Initial condition: IUT is the AT. Tester is the AP.
	The IUT is initialized, has sent a valid Connection Addition Init message and received a valid Connection Addition Setup message to which it transmits a valid Connection Addition Ack message and starts T_ RlcConnectionAdditionAck.
	Check that: each time upon receiving a valid Connection Addition Setup message, the IUT:
	  1) Transmits a Connection Addition Ack message with the same Transaction ID.
	  2) And restarts T_RlcConnectionAdditionAck upon sending this message.
	Final pseudo state: the IUT is establishing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.3.4.2   Connection Modification

5.3.4.2.1   AP Initiated Connection Modification

TP/AT/COC/CM/BV-000	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and a connection is established with the tester. Check that: upon receiving the Connection Change Setup message, the IUT replies to the LT with a Connection Change Ack message. Final pseudo state: the connection is modified.
TP/AT/COC/CM/BV-001	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and has RLC DATA to transmit in UL. Upon receiving the Connection Change Setup message, the IUT replies to the LT with a Connection Change Ack message. T_ConnectionChangeAck has started. Check that: when the TE transmits a Normal Grant during T_ConnectionChangeAck, the IUT transmits the UL RLC DATA using the grant according to the changed Parameters. Final pseudo state: the connection is modified.
TP/AT/COC/CM/BV-002	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and a connection is established with the tester. IUT has received a Connection Change Setup message, replied to it with a Connection Change Ack, and started T_RlcConnectionChangeAck. Check that: upon expiry of T_RlcConnectionChangeAck, the IUT considers the connection modified. Final pseudo state: the IUT is operational and the connection continues as modified.
TP/AT/COC/CM/BV-003	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and a connection is established with the tester. IUT has received a Connection Change Setup message, and then transmitted a Connection Change Ack message and started T_RlcConnectionChangeAck. Check that: upon receiving another Connection Change Setup message within this timer's duration, the IUT transmits another valid Connection Change Ack message with the same Transaction ID. Final pseudo state: the IUT is modifying a connection.

TP/AT/COC/CM/BV-004	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AT. Tester is the AP.
	IUT is initialized and a connection is established with the tester.
	IUT has received a Connection Change Setup message, then transmitted a Connection Change Ack message and started T_RlcConnectionChangeAck.
	Check that: each time the IUT receives a Connection Change Setup message during this timer's duration, the IUT:
	  1) Transmits another valid Connection Change Ack message with the same Transaction ID.
	  2) Restarts T_RlcConnectionChangeAck when sending this Connection Change Ack message.
	Final pseudo state: the IUT is modifying a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.3.4.2.2   AT Initiated Connection Modification

TP/AT/COC/CM/BV-005	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and a connection is established with the tester. Check that: to modify a connection, the IUT sends a valid Connection Change Init message. Final pseudo state: the IUT is modifying a connection.
TP/AT/COC/CM/BV-006	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized, a connection is established with the tester, and the IUT has sent a valid Connection Change Init message. Check that: upon receiving a valid Connection Change Setup message, the IUT replies to the LT with a valid Connection Change Ack message and considers the connection modified Final pseudo state: the connection is modified.
TP/AT/COC/CM/BV-007	Reference: TS 102 000 [1], clause 13.4.2.2. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and has RLC DATA to transmit in UL. Upon receiving the Connection Change Setup message, the IUT replies to the LT with a Connection Change Ack message. T_ConnectionChangeAck has started. Check that: when the TE transmits a Normal Grant during T_ConnectionChangeAck, the IUT transmits the UL RLC DATA using the grant according to the changed Parameters. Final pseudo state: the connection is modified.
TP/AT/COC/CM/BV-008	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized; a connection is established with the tester; and the IUT has sent a valid Connection Change Init message and then received a valid Connection Change Setup message, and then transmitted a valid Connection Change Ack message and started T_RlcConnectionChangeAck. Check that: upon this timer's expiry, the IUT considers the connection modified. Final pseudo state: the IUT is operational and the connection continues as modified.
TP/AT/COC/CM/BV-009	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and a connection is established with the tester message and started T_RlcConnectionChangeInit. Check that: upon this timer's expiry and the IUT having received no valid Connection Change Setup message with this timer's duration, the IUT retransmits the Connection Change Init message with the same Transaction ID. Final pseudo state: the IUT is modifying a connection.

TP/AT/COC/CM/BV-010	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AT. Tester is the AP.
	The IUT is initialized, a connection is established with the tester, and the IUT has sent a valid Connection Change Init message.
	Check that: each time T_RlcConnectionChangeInit expires without the reception of a valid Connection Change Setup message within the timer's duration, the IUT:
	  1) Retransmits the Connection Change Init message with the same Transaction ID.
	  2) And restarts T_RlcConnectionChangeInit upon sending this message.
	Final pseudo state: the IUT is modifying a connection.
	NOTE: The number of these repetitions is unlimited in the specification.

TP/AT/COC/CM/BV-011	Reference: TS 102 000 [1], clause 13.4.3. Initial condition: IUT is the AT. Tester is the AP. The IUT is initialized, a connection is established with the tester, and the IUT has sent a valid Connection Change Init message and received a valid Connection Change Setup message to which it transmits a valid Connection Change Ack message and starts T_ RlcConnectionChangeAck. Check that: after receiving a valid Connection Change Setup message with the same Transaction ID, the IUT transmits a valid Connection Change Ack message. Final pseudo state: the IUT is modifying a connection.

TP/AT/COC/CM/BV-012	Reference: TS 102 000 [1], clause 13.4.3.
	Initial condition: IUT is the AT. Tester is the AP.
	The IUT is initialized, a connection is established with the tester, and the IUT has sent a valid Connection Change Init message and received a valid Connection Change Setup message to which it transmitted a valid Connection Change Ack message and started T_ RlcConnectionChangeAck.
	Check that: each time upon receiving a valid Connection Change Setup message with the same Transaction ID, the IUT:
	  1) Transmits a Connection Change Ack message .
	  2) And restarts T_RlcConnectionChangeAck upon sending this message.
	Final pseudo state: the IUT is modifying a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.3.4.3   Connection Termination

5.3.4.3.1   AP Initiated Connection Termination

TP/AT/COC/CT/BV-000	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and a connection is established with the Tester. Check that: upon receiving a valid Connection Deletion Init message, the IUT replies to the LT with a Connection Deletion Ack message and considers the connection released.. Final pseudo state: the connection is released.
TP/AT/COC/CT/BV-001	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized, a connection is established with the Tester, and the IUT has received a valid Connection Deletion Init message and then sent a valid Connection Deletion Ack message. Check that: upon T_RlcConnectionDeletionAck expiry, the IUT considers the connection released. Final pseudo state: the IUT is operational and the connection no longer exists.
TP/AT/COC/CT/BV-002	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized; a connection is established with the Tester; and the IUT has received a valid Connection Deletion Init message, then sent a valid Connection Deletion Ack message and started T_ RlcConnectionDeletionAck. Check that: upon receiving a Connection Deletion Init message with the same Transaction ID, the IUT transmits a valid Connection Deletion Ack message. Final pseudo state: the IUT is releasing a connection.

TP/AT/COC/CT/BV-003	Reference: TS 102 000 [1], clause 13.4.4.
	Initial condition: IUT is the AT. Tester is the AP.
	IUT is initialized; a connection is established with the Tester; and the IUT has received a valid Connection Deletion Init message, then sent a valid Connection Deletion Ack message and started T_ RlcConnectionDeletionAck.
	Check that: each time, upon receiving a Connection Deletion Init message with the same Transaction ID, the IUT:
	  1) Transmits a valid Connection Deletion Ack message.
	  2) Restarts T_RlcConnectionDeletionAck upon sending this message.
	Final pseudo state: the IUT is releasing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

5.3.4.3.2   AT Initiated Connection Termination

TP/AT/COC/CT/BV-004	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized and a connection is established with the Tester. Check that: to release a connection, the IUT sends a relevant Connection Deletion Init message. Final pseudo state: the IUT is releasing a connection.

TP/AT/COC/CT/BV-005	Reference: TS 102 000 [1], clause 13.4.4.
	Initial condition: IUT is the AT. Tester is the AP.
	IUT is initialized, a connection is established with the Tester, and IUT has transmitted a valid Connection Deletion Init message.
	Check that: upon receiving a valid Connection Deletion Ack message, the IUT:
	  1) Starts T_RlcConnectionDeletionAck.
	  2) Considers the connection released.
	Final pseudo state: the IUT is operational and the connection no longer exists.

TP/AT/COC/CT/BV-006	Reference: TS 102 000 [1], clause 13.4.4. Initial condition: IUT is the AT. Tester is the AP. IUT is initialized, has a valid connection with the Tester, has transmitted a Connection Deletion Init message, and started T_RlcConnectionDeletionInit. Check that: after T_ RlcConnectionDeletionInit expires without receiving a Connection Deletion Ack message; the IUT retransmits another valid Connection Deletion Init message with the same Transaction ID. Final pseudo state: the IUT is releasing a connection.

TP/AT/COC/CT/BV-007	Reference: TS 102 000 [1], clause 13.4.4.
	Initial condition: IUT is the AT. Tester is the AP.
	IUT is initialized, has a valid connection with the Tester, has transmitted a Connection Deletion Init message, and started T_ RlcConnectionDeletionInit.
	Check that: each time T_ RlcConnectionDeletionInit expires without the IUT having received a Connection Deletion Init message, the IUT:
	  1) Retransmits another valid Connection Deletion Init message with the same Transaction ID.
	  2) And restarts T_ RlcConnectionDeletionInit upon sending this message.
	Final pseudo state: the IUT is releasing a connection.
	NOTE: The specification does not limit the number of times that this cycling can occur.

Annex A (informative):
Bibliography

- ITU-T Recommendation X.290: "OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications - General concepts".

- ITU-T Recommendation X.291: "OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications - Abstract test suite specification".

- ETSI TS 102 149-1: "Broadband Radio Access Networks (BRAN); HIPERACCESS; Conformance testing for the Data Link Control (DLC) layer; Part 1: Protocol Implementation Conformance Statement (PICS) proforma".

History

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