

ETSI TS 151 010-5 V6.2.0 (2005-04)

Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Mobile Station (MS) conformance specification;
Part 5: Inter-Radio-Access-Technology (RAT)
(GERAN / UTRAN) interaction Abstract Test Suite (ATS)
(3GPP TS 51.010-5 version 6.2.0 Release 6)**



Reference

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Foreword

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The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

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Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The present document describes the technical characteristics and methods of test for Mobile Stations (MSs), operating in the 900 MHz and 1800 MHz frequency band (GSM 900 and DCS 1800) within the digital cellular telecommunications system.

The present document corresponds to technical specification 3GPP TS 51.010-5, covering the Digital cellular telecommunications system (3GPP Release 99, Release 4, Release 5 and Release 6) version 6.x.x.

The present document, contains Tree and Tabular Combined Notation (TTCN) for Mobile Station (MS) Inter-RAT (GERAN to UTRAN) service conformity specifications, for which Mobile Stations, within the digital cellular telecommunications system (3GPP Release 99, Release 4, Release 5 and Release 6), are tested for compliance.

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document describes the technical characteristics and methods of test for Mobile Stations (MSs) within the digital cellular telecommunications system.

The graphical form ATS

The electronic form of the graphical representation (TTCN.GR format) corresponding to the ATS for Layer 3, is contained in the Adobe Portable Document Format™ file IR_XXX.pdf where XXX corresponds to the current version.

The machine processable ATS

The electronic form of the machine processable file (TTCN.MP format) corresponding to the ATS for Layer 3, is contained in the file IR_XXX.mp where XXX corresponds to the current version.

The present document is part 5 of a multi-part 3GPP TS covering the digital cellular telecommunications system; Mobile Station (MS) conformance specification, as identified below:

- Part 1: Conformance specification
Reference: 3GPP TS 51.010-1.
- Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification.
Reference: 3GPP TS 51.010-2.

Part 3: Layer 3 (L3) Abstract Test Suite (ATS).
Reference: 3GPP TS 51.010-3.

Part 4: SIM Application Toolkit conformance specification
Reference: 3GPP TS 11.10-4.

Part 5: Inter-RAT (GERAN to UTRAN) Abstract Test Suite (ATS)
Reference: 3GPP TS 51.010-5.

NOTE: At the present time, part 4 is 3GPP TS 11.10.

1 Scope

The present document specifies the Abstract Test Suites (ATS) and partial IXIT proforma for the Network Layer (Layer 3) at the mobile radio interface of the GSM/3GPP mobile stations (MS) conforming to the TSs for Layer 3, for the digital cellular telecommunications systems.

The present document is valid for MS implemented according to R99, 3GPP Release 4, Release 5 or Release 6.

The ISO standards for the methodology of conformance testing and the TTCN language are used as the basis for the test specifications.

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 51.010-1: "Mobile Station (MS) conformance specification; Part 1: Conformance Specification".
- [2] 3GPP TS 51.010-2: "Mobile Station (MS) conformance specification; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".
- [3] ETSI TR 101 666 (V1.0.0): "Information technology; Open Systems Interconnection Conformance testing methodology and framework; The Tree and Tabular Combined Notation (TTCN) (Ed. 2++)".
- [4] 3GPP TS 34.123-3: "User Equipment (UE) conformance specification; Part 3: Abstract Test Suites (ATSs)".
- [5] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core network protocols; Stage 3".
- [6] 3GPP TS 04.18: "Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol".
- [7] 3GPP TS 25.331: "Radio Resource Control (RRC) protocol specification"
- [8] 3GPP TS 34.108: "Common test environments for User Equipment (UE) conformance testing".
- [9] ISO/IEC 9646 (all parts): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework".
- [10] ISO/IEC 8824 (all parts): "Information technology - Abstract Syntax Notation One (ASN.1)".
- [11] ISO/IEC 8825 (all parts): "Information technology - ASN.1 encoding rules".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 34.123-3 [4] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TS 51.010-1 [1], 3GPP TS 24.008 [5], 3GPP TS 04.18 [6], 3GPP TS 25.331[7] and TR 101 666 [3] apply.

4 ATS Structure

The modular TTCN approach is used for the development of the 3GPP ATS specification work. Four modules, BasicM, RRC_M, M_RAT_HO_GERAN_M and L3M are installed. Please refer to 3GPP TS 34.123-3 [4] for details of the modular structure.

5 Abstract test method and test configurations

Please refer to 3GPP TS 34.123-3 [4].

6 Specific Test Suite Operations for InterRAT GERAN to UTRAN Handover testing

Table 1: TSO definitions for InterRAT GERAN to UTRAN testing

TSO Name	Description
o_GSM_ToUTRANHO_PERR_Encoding	<p>Type of the result: OCTETSTRING</p> <p>Parameters: p_Msg : HandoverToUTRANCommand p_Len : O1</p> <p>Description: It returns the aligned PER encoding of the input downlink message p_Msg (with "Encoder added (1-7) bits padding") of p_Len octets.</p>
o_LengthofHO_Cmd	<p>Type of the result: INTEGER</p> <p>Parameters: p_Msg : HandoverToUTRANCommand</p> <p>Description: it returns the no. of octets of the input downlink message p_Msg</p>
o_CheckUtranClassmark	<p>Type of the result: ResAndStartValue</p> <p>Parameters: p_InterRATHOInfo : OCTETSTRING p_RACap : UE_RadioAccessCapability</p> <p>Description: This function decodes the InterRATHandoverInfo IE, received from an incoming UtranClassmarkChange message as an octetstring, as the ASN.1 definition InterRATHandoverInfo.</p> <p>It then compares the contents of the input parameter p_RACap against the field p_InterRATHOInfo.ue_CapabilityContainer.present and returns the boolean result in ResAndStartValue.res</p> <p>It also extracts the field START_Value from p_InterRATHOInfo.uE_SecurityInformation.present.start_CS and returns this in ResAndStartValue.start</p> <p>Other fields in the InterRATHandoverInfo IE are not checked.</p>

Annex A (normative): Abstract Test Suites (ATS)

This annex contains the approved ATS which has been produced using the Tree and Tabular Combined Notation (TTCN) according to TR 101 666 [3].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATS contains a test suite overview part which provides additional information and references.

NOTE: Both the .GR and .MP format of the Abstract Test Suite (in TTCN) shall be considered equivalent. In the event that there appears to be syntactical or semantic differences between the two then the problem shall be resolved and the erroneous format (whichever it is) shall be corrected.

A.1 Version of specification

Table A.1 shows the version of the test specifications which the delivered ATS refers to:

Table A.1: Versions of the test and Core specifications

Core specifications	3GPP TS 44.18 [6] (V5.j.0)
	3GPP TS 25.331 [7] (V5.c.1)
Test specifications	3GPP TS 51.010-1 [1] (V6.1.0)
	3GPP TS 51.010-2 [2] (V6.1.0)
	3GPP TS 34.123-3 [4] (V5.0.0)
	3GPP TS 34.108 [8] (V5.4.0)

A.2 IR_G ATS

The approved test cases are listed.

Table A.2: IR_G TTCN test cases

Test case	Description
20.25.3	Intersystem Cell Reselection/Idle Mode/FDD_Qoffset
20.25.4	Intersystem Cell Reselection/Idle Mode/Qsearch_I
26.6.11.3	Classmark interrogation / UTRAN Classmark Change
26.6.11.4	Early UTRAN Classmark Sending
60.1	Inter system handover to UTRAN/From GSM/Speech/Success
60.4	Inter system handover to UTRAN/From GSM/SDCCH/CC Establishment/Success
60.5	Inter system handover to UTRAN/From GSM/Speech/Blind HO/Success
60.6	Inter system handover to UTRAN/From GSM/Speech/Failure
60.10	Inter system handover to UTRAN/From GSM/Integrity Protection Activation

A.2.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (IR_Gv620.PDF contained in archive IR_G620ATS.ZIP) which accompanies the present document.

A.2.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (IR_Gv620.MP contained in archive IR_G620ATS.ZIP) which accompanies the present document.

Annex B (normative): Partial IXIT proforma

Notwithstanding the provisions of the copyright clause related to the text of the present document, 3GPP Organizational Partners grant that users of the present document may freely reproduce the partial IXIT proforma in this annex so that it can be used for its intended purposes and may further publish the completed partial IXIT.

B.0 Introduction

This partial IXIT proforma contained in the present document is provided for completion, when the related Abstract Test Suite is to be used against the Implementation Under Test (IUT).

Text in *italics* is comments for guidance for the production of a IXIT, and is not to be included in the actual IXIT.

The completed partial IXIT will normally be used in conjunction with the completed ICS, as it adds precision to the information provided by the ICS.

B.1 Parameter values

These parameters are used in the IR_G ATS.

Table B.1: IR_G PIXIT

Parameter Name	Description	Type	Default Value	Supported Value

Annex C (normative): Additional information to IXIT

Notwithstanding the provisions of the copyright clause related to the text of the present document, 3GPP grants that users of the present document may freely reproduce the PIXIT proforma in this annex so that it can be used for its intended purposes and may further publish the completed PIXIT.

C.1 Identification Summary

Table C.1 is completed by the test laboratory. The item "Contract References" is optional.

Table C.1: Identification Summary

IXIT Reference Number	
Test Laboratory Name	
Date of Issue	
Issued to (name of client)	
Contract References	

C.2 Abstract Test Suite Summary

Table C.2 the test laboratory provides the version number of the protocol specification and the version number of ATS which are used in the conformance testing.

Table C.2: ATS Summary

Protocol Specification	3GPP TS 24.008
Version of Protocol Specification	
TSS & TP Specification	3GPP TS 51.010-1
Version of TSS & TP Specification	
ATS Specification	3GPP TS 51.010-5
Version of ATS Specification	
Abstract Test Method	Distributed Test Method

C.3 Test Laboratory

C.3.1 Test Laboratory Identification

The test laboratory provides the following information.

Table C.3: Test Laboratory Identification

Name of Test Laboratory	
Postal Address	
Office address	
e-mail address	
Telephone Number	
FAX Number	

C.3.2 Accreditation status of the test service

The test laboratory provides the following information.

Table C.4: Accreditation status of the test service

Accreditation status	
Accreditation Reference	

C.3.3 Manager of Test Laboratory

The test laboratory provides the information about the manager of test laboratory in table C.5.

Table C.5: Manager of Test Laboratory

Name of Manager of Test Laboratory	
e-mail address	
Telephone Number	
FAX Number	
E-mail Address	

C.3.4 Contact person of Test Laboratory

The test laboratory provides the information about the contact person of test laboratory in table C.6.

Table C.6: Contact person of Test Laboratory

Name of Contact of Test Laboratory	
e-mail address	
Telephone Number	
FAX Number	
E-mail Address	

C.3.5 Means of Testing

In table C.7, the test laboratory provides a statement of conformance of the Means Of Testing (MOT) to the reference standardized ATS, and identifies all restrictions for the test execution required by the MOT beyond those stated in the reference standardized ATS.

Table C.7: Means of Testing

Means of Testing

C.3.6 Instructions for Completion

In table C.8, the test laboratory provides any specific instructions necessary for completion and return of the proforma from the client.

Table C.8: Instruction for Completion

Instructions for Completion

C.4 Client

C.4.1 Client Identification

The client provides the identification in table C.9.

Table C.9: Client Identification

Name of Client	
Postal Address	
Office Address	
Telephone Number	
FAX Number	

C.4.2 Client Test Manager

In table C.10 the client provides information about the test manager.

Table C.10: Client Test Manager

Name of Client Test Manager	
Telephone Number	
FAX Number	
E-mail Address	

C.4.3 Client Contact person

In table C.11 the client provides information about the test contact person.

Table C.11: Client Contact person

Name of Client contact person	
Telephone Number	
FAX Number	
E-mail Address	

C.4.4 Test Facilities Required

In table C.12, the client records the particular facilities required for testing, if a range of facilities is provided by the test laboratory.

Table C.12: Test Facilities Required

Test Facilities Required

C.5 System Under Test

C.5.1 SUT Information

The client provides information about the SUT in table C.13.

Table C.13: SUT Information

System Name	
System Version	
SCS Reference	
Machine Configuration	
Operating System Identification	
IUT Identification	
ICS Reference for the IUT	

C.5.2 Limitations of the SUT

In table C.14, the client provides information explaining if any of the abstract tests cannot be executed.

Table C.14: Limitation of the SUT

Limitations of the SUT

C.5.3 Environmental Conditions

In table C.15 the client provides information about any tighter environmental conditions for the correct operation of the SUT.

Table C.15: Environmental Conditions

Environmental Conditions

C.6 Ancillary Protocols

This clause is completed by the client in conjunction with the test laboratory.

In the following tables, the client identifies relevant information concerning each ancillary protocol in the SUT other than the IUT itself. One table for one ancillary protocol.

Based on the MOT the test laboratory should create question proforma for each ancillary protocol in the blank space following each table. The information required is dependent on the MOT and the SUT, and covers all the addressing, parameter values, timer values and facilities (relevant to ENs) as defined by the ICS for the ancillary protocol.

C.6.1 Ancillary Protocols 1

Table C.16: Ancillary Protocol 1

Protocol Name	EN 300
Version number	
ICS Reference (optional)	
IXIT Reference (optional)	
PCTR Reference (optional)	

C.6.2 Ancillary Protocols 2

Table C.17: Ancillary Protocol 2

Protocol Name	EN 300
Version number	
ICS Reference (optional)	
IXIT Reference (optional)	
PCTR Reference (optional)	

C.7 Protocol Layer Information for L3 of Mobile Station

C.7.1 Information provided for test purposes by the MS supplier

Item	Description	Type/Allowed values	Supported Value	Release

C.7.2 MMI information

This annex lists MMI command strings which are transmitted from specific GERAN test steps in the TTCN to the SS.

- Please trigger PDP Context Activation Type 2 in UE.
- Please trigger UE to send three SNDCCP PDUs of 500 bytes each on SAPI 11.

C.7.3 Test house specified parameters

Item	Description	Type/Allowed values	Value chosen	Release

Annex D (normative): PCTR Proforma

Please refer to 3GPP TS 34.123-3 [4].

Annex E (informative): Change history

Change history										
TSG #	TSG Doc	CR	Rev	Subject/Comment	Cat	Old	New	WG Doc	Work item	
04/06/04				Creation of first draft			0.0.0	GP-041355		
15/09/04				Updated with comments		0.0.0	0.1.0	-		
26/10/04				Editorial changes to present to GERAN WG3 #22		0.1.0	0.2.0	GP-042335		
11/11/04				Raised to version 2.0.0 for presentation to GERAN #22 for approval		0.2.0	2.0.0	GP-042795		
12/11/04				Approved at GERAN Plenary #22		2.0.0	6.0.0			
GP-23	GP-050008	001	-	Update of verified Test Cases for Inter-RAT	F	6.0.0	6.1.0	GP-050008	ALTE RE/Int er- RAT	
GP-24	GP-050758	002	-	Summary of regression errors for IR_G_wk09.	F	6.1.0	6.2.0	GP-050758	N/A	
GP-24	GP-050759	003	-	Corrections to approved IR_G test cases 26.6.11.3 and 26.6.11.4.	F	6.1.0	6.2.0	GP-050759	N/A	
GP-24	GP-050760	004	-	Corrections to approved IR_G test case 60.1 to handle the path for Handover To UTRAN for MS supporting GSM HR speech call.	F	6.1.0	6.2.0	GP-050760	N/A	
GP-24	GP-050761	005	-	Addition of GCF P4 test cases 60.4 to IR_G ATS.	B	6.1.0	6.2.0	GP-050761	N/A	
GP-24	GP-050762	006	-	Addition of WI-12 test case 60.10 to IR_G ATS.	B	6.1.0	6.2.0	GP-050762	N/A	
GP-24	GP-050763	007	-	Addition of WI-12 test case 20.25.3 to IR_G ATS.	B	6.1.0	6.2.0	GP-050763	N/A	
GP-24	GP-050764	008	-	Addition of WI-12 test cases 20.25.4 to IR_G ATS.	B	6.1.0	6.2.0	GP-050764	N/A	
GP-24	GP-050888	009	-	Add new verified TTCN test cases in Annex A	F	6.1.0	6.2.0	GP-050888	ALTE RE/Int er- RAT	

History

Document history		
V6.1.0	February 2005	Publication
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