

# ETSI TS 151 010-5 V10.4.0 (2013-04)



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 10.4.0 Release 10)**

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## Foreword

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## Foreword

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

The present document describes the technical characteristics and methods of test for Mobile Stations (MSs), operating in the different frequency bands 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, Release 6, Release 7 and Release 8) version 8.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, Release 6, Release 7 and Release 8), 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.

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## 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.**
- Part 7: Location Services (LCS) test scenarios and assistance data.  
Reference: 3GPP TS 51.010-7.
- NOTE: At the present time, part 4 is 3GPP TS 11.10.

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# 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, Release 6, Release 7 or Release 8.

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

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# 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_PER_Encoding	<p><b>Type of the result:</b> OCTETSTRING</p> <p><b>Parameters:</b>            p_Msg : HandoverToUTRANCommand            p_Len : O1</p> <p><b>Description:</b>            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><b>Type of the result:</b> INTEGER</p> <p><b>Parameters:</b>            p_Msg : HandoverToUTRANCommand</p> <p><b>Description:</b>            it returns the no. of octets of the input downlink message p_Msg</p>

Refer to 34.123-3 [4], clause 8.7 for test suite operations also used in UTRAN based testing.

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## 7 Generic Procedures for GERAN/LTE testing

### 7.1 GPRS Attach

Refer to 34.123-3 [4], clause 6.10.2.7

### 7.2 PDP Context 2 Activated

Refer to 51.010-1, clause 40.4.3.15

### 7.3 U10 Active State

Refer to 51.010-1, clause 40.4.3.22

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## 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.

### 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**

<b>Core specifications</b>	3GPP TS 44.018 [6] (V10.6.0)
	3GPP TS 25.331 [7] (V10.7.0)
<b>Test specifications</b>	3GPP TS 51.010-1 [1] (V10.4.0)
	3GPP TS 51.010-2 [2] (V10.4.0)
	3GPP TS 34.123-3 [4] (V10.2.0)
	3GPP TS 34.108 [8] (V11.4.0)

### A.2 IR\_G ATS

The approved test cases are listed below.

#### Number of TC Executions

This column indicates the recommended number of TC executions. In case this recommended number is less than the number of TC executions imposed by the individual TC applicability, this column also indicates the preferred domain for testing. The different entries shall be read as follows:

- CS - TC is recommended to execute in CS domain
- CS+PS - TC is recommended to execute CS+PS with pc\_CS and pc\_PS set to TRUE
- PS - TC is recommended to execute in PS domain

Note: This definition is taken from 34.123-2, clause 4.