

**3GPP TSG-SA5 (Telecom Management)  
Meeting #12, Rome, 5–9 June 2000**

**SA5#12(00)0328**

**CHANGE REQUEST**

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

**32.111 CR 001**

Current Version: **3.0.1**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **SA#8**  
list expected approval meeting # here ↑

for approval   
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**Proposed change affects:**  
(at least one should be marked with an X)

(U)SIM  ME  UTRAN / Radio  Core Network

**Source:** SA5#12 **Date:** 20 June 2000

**Subject:** Split of TS - Part 1: Main part of spec – Requirements

**Work item:** 32.111 3G Fault Management

**Category:** F Correction  **Release:** Phase 2   
A Corresponds to a correction in an earlier release  Release 96   
(only one category shall be marked with an X) B Addition of feature  Release 97   
C Functional modification of feature  Release 98   
D Editorial modification  Release 99   
Release 00

**Reason for change:**

The following changes are proposed to be introduced in TS 32.111 Ver 3.0.1

The changes are derived from the decision to split the original document in four parts.

This is the Part-1 and contains the requirements for the Fault Management of the 3GPP Systems

**Clauses affected:** Front page, Foreword, Scope.

**Other specs affected:**

Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
MS test specifications	<input type="checkbox"/>	→ List of CRs:	
BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
O&M specifications	<input type="checkbox"/>	→ List of CRs:	

**Other comments:**

# 3G TS 32.111-1 V3.0.1a (2000-065)

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*Technical Specification*



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**3rd Generation Partnership Project;  
Technical Specification Group Services and System Aspects;  
PART1: 3G Fault Management  
(Release 1999)**

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Keywords

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Fault Management, Alarms

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# Contents

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## Foreword

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

The present document is part 1 of multi-part 3G TS covering the 3<sup>rd</sup> Generation Partnership Project: Technical Specification Group Services and System Aspects, as identifies below:

**Part 1: “3G Fault Management Requirements”;**

**Part 2: “Alarm Integration Reference Point: Information Service”;**

**Part 3: “Alarm Integration Reference Point: CORBA Solution Set”;**

**Part 4: “Alarm Integration Reference Point: CMIP Solution Set”.**

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 is part of a set of TSs which describe the requirements and information model necessary for the Telecommunication Management (TM) of 3G systems. The TM principles and TM architecture are specified in 3G TS 32.101 and 3G TS 32.102.

A 3G system is composed of a multitude of network elements (NE) of various types and, typically, different vendors which inter-operate in a co-ordinated manner in order to satisfy the network users' communication requirements. The occurrence of failures in a network element may cause a deterioration of this NE's function and/or service quality and will, in severe cases, lead to the complete unavailability of the NE. In order to minimise the effects of such failures on the quality of service as perceived by the network users it is necessary to:

- detect failures in the network as soon as they occur and alert the operating personnel as fast as possible;
- isolate the failures (autonomously or through operator intervention), i.e. switch off faulty units and, if applicable, limit the effect of the failure as much as possible by reconfiguration of the faulty NE/adjacent NEs;
- if necessary, determine the cause of the failure using diagnosis and test routines; and,
- repair/eliminate failures in due time through the application of maintenance procedures.

This aspect of the management environment is termed "Fault Management" (FM). The purpose of FM is to detect failures as soon as they occur and to limit their effects on the network quality of service as far as possible. The latter is achieved by bringing additional/redundant equipment into operation, reconfiguring existing equipment/NEs, or by repairing/eliminating the cause of the failure.

Fault Management encompasses all of the above functionalities except commissioning/decommissioning of NEs and potential operator triggered reconfiguration (these are a matter of Configuration Management, cf. [1]). It also includes associated features in the OS, such as the administration of a pending alarms list, the presentation of operational state information of physical and logical devices/resources/functions, and the provision and analysis of the alarm and state history of the network.

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# 1 Scope

~~This TS 32.111-1 The present document~~ specifies the overall requirements for 3G Fault Management as it applies to the NE, EM and NM.

Clauses 4 ~~and 5~~ defines the fault management concept and functional requirements for the detection of faults and the generation, collection and presentation of alarms, operational state data and test results across 3G systems. These functions are described on a non-formal level since the formal standardisation of these functions across the different vendors' equipment is not required. The functional areas to be specified in this part of the document cover:

- fault surveillance and detection in the NEs;
- notification of alarms (including alarm cease) and operational state changes;
- retrieval of current alarms from the NEs;
- fault isolation and defence mechanisms in the NEs;
- alarm filtering;
- management of alarm severity levels;
- alarm and operational state data presentation and analysis at the OS;
- retention of alarm and operational state data in the NEs and the OS; and
- the management of tests.

Any (re)configuration activity exerted from the OMC as a consequence of faults will not be subject of the present document, these are described in [1].

~~Clauses 6 and 7 of the present document describe specific aspects of the Fault Management for the UTRAN and the CN, respectively, with particular emphasis on the exact fault definitions and alarm information to be generated. The definition of the test procedures and the relationship with the UTRAN resp. CN management architecture as defined in [3].~~

~~Finally,~~ Clause 85 of the present document defines the functional requirements for the standard Itf-N, for the purpose of Fault Management of 3G networks, as seen from the Network Manager (NM). The Itf-N is fully standardised so as to connect systems of any vendor to the NM via this interface.