ETSI TS 132 401 V14.0.0 (2017-04)

**Digital cellular telecommunications system (Phase 2+) (GSM);
Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Performance Management (PM);
Concept and requirements
(3GPP TS 32.401 version 14.0.0 Release 14)**

Reference
RTS/TSGS-0532401ve00

Keywords
GSM,LTE,UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Contents

Foreword

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

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Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication Management; Performance Management (PM), as identified below:

TS 32.401: "Concept and requirements";

TS 52.402: "Performance measurements - GSM";

TS 32.404: "Performance measurements - Definitions and template";

TS 32.405: "Performance measurements Universal Terrestrial Radio Access Network (UTRAN)";

TS 32.406: "Performance measurements Core Network (CN) Packet Switched (PS) domain";

TS 32.407: "Performance measurements Core Network (CN) Circuit Switched (CS) domain; UMTS and combined UMTS/GSM";

TS 32.408: "Performance measurements Teleservice";

TS 32.409: "Performance measurements IP Multimedia Subsystem (IMS)";

TS 32.425: "Performance measurements Evolved Universal Terrestrial Radio Access Network (E-UTRAN)";

TS 32.426: "Performance measurements Evolved Packet Core (EPC) network";

TS 32.452: "Performance measurements Home Node B (HNB) Subsystem HNS";

TS 32.453: "Performance measurements Home enhanced Node B (HeNB) Subsystem (HeNS)".

TS 28.402: "Performance measurements Evolved Packet Core (EPC) and non-3GPP access Interworking System".

TS 28.403: "Performance measurements Wireless Local Area Network (WLAN)".

The present document is part of a set of specifications, which describe the requirements and information model necessary for the standardised Operation, Administration and Maintenance (OA&M) of a multi-vendor GSM, UMTS or LTE PLMN.

During the lifetime of a PLMN, its logical and physical configuration will undergo changes of varying degrees and frequencies in order to optimise the utilisation of the network resources. These changes will be executed through network configuration management activities and/or network engineering, see 3GPP TS 32.600 [3].

Many of the activities involved in the daily operation and future network planning of a PLMN network require data on which to base decisions. This data refers to the load carried by the network and the grade of service offered. In order to produce this data performance measurements are executed in the NEs, which comprise the network. The data can then be transferred to an external system, e.g. an Operations System (OS) in TMN terminology, for further evaluation. The purpose of the present document and its companion parts 2 and 3 is to describe the mechanisms involved in the collection of the data and the definition of the data itself.

1 Scope

The present document describes the requirements for the management of performance measurements and the collection of performance measurement result data across GSM, UMTS and LTE networks. It defines the administration of measurement schedules by the Network Element Manager (EM), the generation of measurement results in the Network Elements (NEs) and the transfer of these results to one or more Operations Systems, i.e. EM(s) and/or Network Manager(s) (NM(s)).

The basic Performance Management concept that the present document is built upon is described in clause 4.
The requirements of how an EM administers the performance measurements and how the results can be collected are defined in detail in clause 5. Measurements available for collection by NEs are described in the following specifications:

- TS 52.402 for GSM systems;
- TS 32.405, TS 32.406, TS 32.407 and TS 32.408 for UMTS and combined UMTS/GSM systems;
- TS 32.409 for IMS networks;
- TS 32.425 for E-UTRAN.
- TS 32.426 for EPC.
- TS 32.452 for Home Node B (HNB) Subsystem (HNS).
- TS 32.453 for Home enhanced Node B (HeNB) Subsystem (HeNS).
- TS 28.402 for Evolved Packet Core (EPC) and non-3GPP access Interworking System.
- TS 28.403 for Wireless Local Area Network (WLAN)

Effort has been made to ensure consistency in the definition of measurements between different NEs and generations. The performance measurement result is described in Performance Measurement File Format Definition (3GPP TS 32.432 [29]).

The following is beyond the scope of the present document, and therefore the present document does not describe:

- the formal definition of the interface that the EM uses to administer performance measurements in the NEs;
- the formal definition of the interface that the EM uses to collect measurement results from the NEs;
- how the data, once accumulated and collected, could or should be processed, stored, or presented to an end user;
- the information which may be obtained through the collection and processing of call or event related records which have been produced by the NEs primarily for the purpose of raising bills and other charges.

The management requirements have been derived from existing telecommunications operations experience. The management definitions were then derived from other standardisation work so as to minimise the re-invention factor. References are given as appropriate.

The objectives of this standardisation are:

- to provide the descriptions for a standard set of measurements;
- to produce a common description of the management technique for measurement administration and result accumulation; and
- to define a method for the bulk transmission of measurement results across a management interface.

The definition of the standard measurements is intended to result in comparability of measurement result data produced in a multi-vendor wireless network, for those measurement types that can be standardised across all vendors' implementations.