

ETSI TS 132 436 V10.0.0 (2011-04)

Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Performance measurement:
Abstract Syntax Notation 1 (ASN.1) file format definition
(3GPP TS 32.436 version 10.0.0 Release 10)**



Reference

RTS/TSGS-0532436va00

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

Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2011.
All rights reserved.

DECT[™], **PLUGTESTS**[™], **UMTS**[™], **TIPHON**[™], the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP[™] is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

LTE[™] is a Trade Mark of ETSI currently being registered

for the benefit of its Members and of the 3GPP Organizational Partners.

GSM[®] and the GSM logo are Trade Marks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

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

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.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Contents

Intellectual Property Rights	2
Foreword.....	2
Foreword.....	4
Introduction	4
1 Scope	5
2 References	5
3 Definitions and abbreviations.....	5
3.1 Definitions	5
3.2 Abbreviations	6
4 Mapping	6
5 ASN.1 file format definition	7
Annex A (informative): Example of ASN.1 Measurement Report File	9
Annex B (informative): Change history	10
History	11

Foreword

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

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 is part of a TS-family covering the 3rd Generation Partnership Project: Technical Specification Group Services and System Aspects; Telecommunication management, as identified below:

- TS 32.432: "Performance measurement; File format definition";
- TS 32.435: "Performance measurement; eXtensible Markup Language (XML) file format definition";
- TS 32.436: "Performance measurement; Abstract Syntax Notation 1 (ASN.1) file format definition".**

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 3G 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 [4].

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 the other related 3GPP TSs listed above is to describe the mechanisms involved in the collection of the data.

1 Scope

The present document defines the ASN.1 file format definition for performance measurement results collection whose semantics is defined in 3GPP TS 32.432 [5].

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 32.101: "Telecommunication management; Principles and high level requirements".
- [2] 3GPP TS 32.102: "Telecommunication management; Architecture".
- [3] 3GPP TS 32.401: "Telecommunication management; Performance Management (PM); Concept and requirements".
- [4] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [5] 3GPP TS 32.432: "Performance Measurement: File format definition".
- [6] ITU-T Recommendation X.680: "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

network Element Manager (EM): provides a package of end-user functions for management of a set of closely related types of Network Elements. These functions can be divided into two main categories:

- Element Management Functions for management of Network Elements on an individual basis. These are basically the same functions as supported by the corresponding local terminals.
- Sub-Network Management Functions that are related to a network model for a set of Network Elements constituting a clearly defined sub-network, which may include relations between the Network Elements. This model enables additional functions on the sub-network level (typically in the areas of network topology presentation, alarm correlation, service impact analysis and circuit provisioning).

Network Manager (NM): provides a package of end-user functions with the responsibility for the management of a network, mainly as supported by the EM(s) but it may also involve direct access to the Network Elements. All communication with the network is based on open and well-standardised interfaces supporting management of multi-vendor and multi-technology Network Elements.

Operations System (OS): generic management system, independent of its location level within the management hierarchy.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3G	3 rd Generation
ASN.1	Abstract Syntax Notation 1
BER	Basic Encoding Rules
EM	Element Manager
GSM	Global System for Mobile communications
IRP	Integration Reference Point
NE	Network Element
NM	Network Manager
PM	Performance Management

4 Mapping

Table 4.1 maps the file content items in the 3GPP TS 32.432 [5] to those used in the ASN.1 (see [6]) file format definitions.

Table 4.1 Mapping of File Content Items to ASN.1 types

File Content Item	ASN.1 Type	Description
measDataCollection	MeasDataCollection	
measFileHeader	MeasFileHeader	
measData	MeasData	
measFileFooter	MeasFileFooter	
fileFormatVersion	FileFormatVersion	
senderName	SenderName	For ASN.1 format, the string may be empty (i.e. string size =0) in case the DN is not configured in the sender.
senderType	SenderType	
vendorName	VendorName	
collectionBeginTime	CollectionBeginTime	
neId	NEId	
neUserName	NEUserName	
neDistinguishedName	NEdistinguishedName	
neSoftwareVersion	NESoftwareVersion	
measInfo	MeasInfo	
measInfoFold	MeasInfoFold	
measTimeStamp	MeasTimeStamp	
jobId	JobId	
granularityPeriod	GranularityPeriod	
reportingPeriod	ReportingPeriod	
measTypes	MeasTypes	
measValues	MeasValues	
measObjInstId	MeasObjInstId	
measResults	MeasResults	
suspectFlag	SuspectFlag	
timeStamp	TimeStamp	ASN.1 GeneralizedTime format.

5 ASN.1 file format definition

The ASN.1 file format definitions implement the measurement result structure and parameters defined in clauses 5.2 and 5.3 of 3GPP TS 32.401 [3].

For ASN.1 formatted files, BER encoding rules shall apply. Embedded comments are integral parts of the standard format; i.e. any implementation-claiming conformance to this annex shall also conform to the comments.

```
PM-File-Description
DEFINITIONS AUTOMATIC TAGS ::= BEGIN
```

```
MeasDataCollection ::= SEQUENCE
{
    measFileHeader      MeasFileHeader,
    measData             SEQUENCE OF MeasData,
    measFileFooter      MeasFileFooter
}
```

```
MeasFileHeader ::= SEQUENCE
{
    fileFormatVersion      PrintableString (SIZE (0..15)),
    senderName             PrintableString (SIZE (0..400)),
    senderType             SenderType,
    vendorName             PrintableString (SIZE (0..32)),
    collectionBeginTime    TimeStamp,
    ...
}
```

-- The sole purpose of the ellipsis notation used in the file header is to facilitate inter-release compatibility, vendor specific additions are not allowed in implementations claiming conformance to the TS. However, it is acknowledged that this feature does enable the use of non-standard extensions to the file header without loosing compatibility to the file format specified in the present document.

```
SenderType ::= PrintableString (SIZE (0..8))
```

```
TimeStamp ::= GeneralizedTime
```

```
MeasData ::= SEQUENCE
{
    nEId                 NEId,
    measInfo             SEQUENCE OF MeasInfo
}
```

```
NEId ::= SEQUENCE
{
    nEUserName           PrintableString (SIZE (0..64)),
    nEDistinguishedName PrintableString (SIZE (0..400)),
    nESoftwareVersion    PrintableString (SIZE (0..64)) OPTIONAL
}
```

```
MeasInfo ::= SEQUENCE
{
    measTimeStamp        TimeStamp,
    granularityPeriod    INTEGER,
    measTypes            SEQUENCE OF MeasType,
    measValues           SEQUENCE OF MeasValue
    reportingPeriod      INTEGER OPTIONAL,
    jobId                INTEGER OPTIONAL,
    measInfoId           PrintableString (SIZE (0..64)) OPTIONAL,
}
```

```
MeasType ::= PrintableString (SIZE (1..64))
```

```
MeasValue ::= SEQUENCE
{
    measObjInstId        MeasObjInstId,
    measResults          SEQUENCE OF MeasResult,
    suspectFlag          BOOLEAN DEFAULT FALSE
}
```

```
MeasObjInstId ::= PrintableString (SIZE (0..400))
```

-- The size of the concatenated measObjInstId and nEDistinguishedName must not exceed 400.

```
MeasResult ::= CHOICE
{
    iValue  INTEGER,
    rValue  REAL,
    noValue NULL,
    ...
}
```


-- Normal values are INTEGERS and REALs. The NULL value is reserved to indicate that the measurement item is not applicable or could not be retrieved for the object instance. The sole purpose of the ellipsis notation used in the MeasResult choice is to facilitate inter-release compatibility in case the choice needs to be extended in future releases.

MeasFileFooter ::= TimeStamp

END

Annex A (informative): Example of ASN.1 Measurement Report File

For readability, a kind of pseudo ASN.1 was used instead of the BER encoding.

```

MeasDataCollection ::= {
  measFileHeader {
    fileFormatVersion ::= "32.436 V6.1",
    senderName ::=
      "DC=a1.companyNN.com,SubNetwork=1,IRPAgent=1,SubNetwork=CountryNN,MeContext=MEC-Gbg-
      1,ManagedElement=RNC-Gbg-1",
    senderType ::= "RNC",
    vendorName ::= "Company NN",
    collectionBeginTime ::= 20000301140000
  },
  measData {
    nEid {
      nEUserName ::= "RNC Telecomville",
      nEDistinguishedName ::=
        "DC=a1.companyNN.com,SubNetwork=1,IRPAgent=1,SubNetwork=CountryNN,MeContext=MEC-Gbg-
        1,ManagedElement=RNC-Gbg-1",
      nESoftwareVersion ::= "2.1"
    },
    measInfo {
      measInfoId ::= Category A
      measTimeStamp ::= 20000301141430,
      jobId ::= "1231",
      granularityPeriod ::= 900,
      reportingPeriod ::= 1800,
      measTypes {
        "attTCHSeizures",
        "succTCHSeizures",
        "attImmediateAssignProcs",
        "succImmediateAssignProcs"
      },
      measValues {
        {
          measObjInstId ::= "RncFunction=RF-1,UtranCell=Gbg-997",
          measResults {
            iValue ::= 234,
            iValue ::= 345,
            iValue ::= 567,
            iValue ::= 789
          },
          suspectFlag ::= FALSE
        },
        {
          measObjInstId ::= "RncFunction=RF-1,UtranCell=Gbg-998",
          measResults {
            iValue ::= 890,
            iValue ::= 901,
            iValue ::= 123,
            iValue ::= 234
          },
          suspectFlag ::= FALSE
        },
        {
          measObjInstId ::= "RncFunction=RF-1,UtranCell=Gbg-999",
          measResults {
            iValue ::= 456,
            iValue ::= 567,
            iValue ::= 678,
            iValue ::= 789
          },
          suspectFlag ::= TRUE
        }
      }
    }
  },
  measFileFooter ::= 20000301141500
}

```

Annex B (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Cat	Old	New
Sep 2004	S_25	SP-040580	--	--	Draft created based on 32.401 V6.1.0 and submitted to SA#25 for Information	--	1.0.0	
Dec 2004	S_26	SP-040788	--	--	Submitted to SA#26 for Approval	--	2.0.0	6.0.0
Sep 2005	SA_29	SP-050585	0001	--	Enhance PM ASN.1 file with measInfo	C	6.0.0	7.0.0
Dec 2008	SA_42	--	--	--	Upgrade to Release 8	--	7.0.0	8.0.0
Dec 2009	SA_46	--	--	--	Upgrade to Release 9	--	8.0.0	9.0.0
2011-03	-	-	-	-	Update to Rel-10 version (MCC)	--	9.0.0	10.0.0

History

Document history		
V10.0.0	April 2011	Publication