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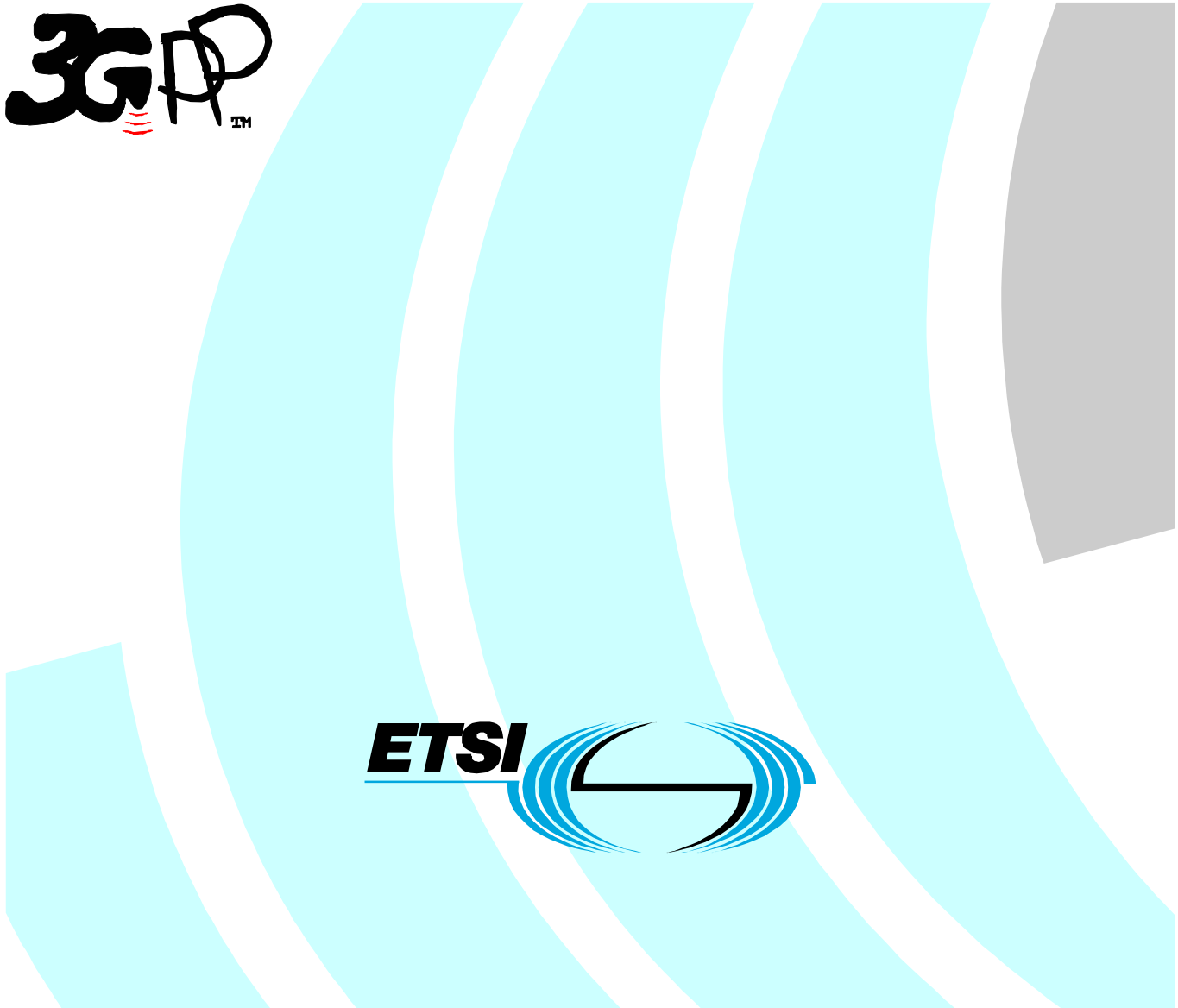
Technical Specification

Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
Test management Integration Reference Point (IRP);
CMIP solution set
(3GPP TS 32.324 version 5.0.1 Release 5)



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Foreword

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Contents

Foreword

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

The present document is part of the 32.32x-series covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication Management; Test management Integration Reference Point (IRP), as identified below:

32.321: "Requirements";

32.322: "Information service";

32.323: "CORBA solution set";

32.324: "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.

Introduction

A 3G telecommunication network is composed of a multitude of different Network Elements (NE). For a successful operation of the network the operator must be provided with mechanisms allowing him to manage the network. These management activities can be grouped into several areas: configuration management, fault management, performance management, accounting management and security management.

A management function assisting in different high level management areas such as fault management and performance management is test management. The purpose of testing is to get information about the functionality and performance of the 3G managed network subject to the test.

The present document is part of a set of technical specifications defining the telecommunication management (TM) of 3G systems. The TM principles are described in 3GPP TS 32.101 [5]. The TM architecture is described in 3GPP TS 32.102 [6]. The other specifications define the interface (Itf-N) between the managing system (manager), which is in general the network manager (NM) and the managed system (agent), which is either an element manager (EM) or the managed NE itself. The Itf-N is composed of a number of integration reference points (IRPs) defining the information in the agent that is visible for the manager, the operations that the manager may perform on this information and the notifications that are sent from the agent to the manager. One of these IRPs is the Test IRP.

Each IRP is specified by four TS, the requirements part, the Information Service (IS) part, the CORBA solution set and the CMIP solution set.

1 Scope

The present document specifies the Common Management Information Protocol (CMIP) Solution Set (SS) for the Test Management IRP: Information Service defined in 3GPP TS 32.322 [8]. In detail:

- Clause 4 provides the basic architectural concept of the CMIP SS and the mapping between the IOCs, operations and notifications defined in 3GPP TS 32.322 [8] to the corresponding CMIP SS equivalents.
- Clause 5 contains the GDMO definitions for the Test Management IRP over the CMIP interfaces.
- Clause 6 contains the ASN.1 definitions supporting the GDMO definitions provided in clause 5.

This Solution Set specification is related to 3G TS 32.322 (V5.0.X).

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: "3G Telecom Management principles and high level requirements".

[2] 3GPP TS 32.102: "3G Telecom Management Architecture".

[4] 3GPP TS 32.301: "Telecommunication management; Configuration Management; Notification Integration Reference Point (IRP): Requirements".

[5] 3GPP TS 32.304: "Telecommunication management; Configuration Management; Notification Integration Reference Point (IRP): CMIP Solution Set Version 1:1".

[6] 3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management; Information service".

[7] 3GPP TS 32.321: "Telecommunication management; Test management Integration Reference Point (IRP); Requirements".

[8] 3GPP TS 32.322: "Telecommunication management; Test management Integration Reference Point (IRP); Information service".

[9] ITU-T Recommendation X.710: "Information technology - Open Systems Interconnection - Common Management Information Service".

[10] ITU-T Recommendation X.745:"Information technology - Open Systems Interconnection - Systems Management: Test management function".

[11] ITU-T Recommendation X.737: "Information technology; Open Systems Interconnection; Systems management: Confidence and diagnostic test categories".

[12] ITU-T Recommendation X.721: "Information technology - Open Systems Interconnection - Structure of management information: Definition of management information".

[13] ISO/IEC 10165-2: "Information technology - Open Systems Interconnection - Structure of management information: Definition of management information".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2] and 3GPP TS 32.321 [7] apply.

3.2 Abbreviations

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

CMIP	Common Management Information Protocol
IOC	Information Object Class
IS	Information Service
MOC	Managed Object Class
NE	Network Element
SS	Solution Set
TO	Test Object

4 Basic Aspects

4.1 Architectural Aspects

The architecture of the Test Management IRP CMIP Solution Set is based on the test management function defined in ITU-T Recommendation X.745 [10].

4.2 Mapping

The semantics of the Test Management IRP are defined in 3GPP TS 32.322 [8]. The definitions of the management information defined there are independent of any implementation technology and protocol. This clause maps these protocol independent definitions onto their equivalents of the CMIP Solution Set of the Test Management IRP.

4.2.1 Mapping of Information Object Classes

Table 1 maps the IOCs defined in 3GPP TS 32.322 [8] to the corresponding Managed Object Classes (MOCs) defined in this CMIP Solution Set. The MOCs are qualified either as Mandatory (M) or Optional (O).

Table 1: Mapping of IOCs

IS IOC	MOC of the CMIP SS	Qualifier
TestManagementIRP	testManagementIRP	M
TestActionPerformer	testActionPerformer (ITU-T Recommendation X.745 [10])	M
TesterObject	testObject (ITU-T Recommendation X.745 [10])	M
TestInvocation	testObject (ITU-T Recommendation X.745 [10])	M
ResourceSelfTestTesterObject	resourceSelfTestObject (ITU-T Recommendation X.737 [11])	M

4.2.2 Mapping of Information Object Class Attributes

Table 2 depicts the mapping of attributes defined in 3GPP TS 32.32 [8] to the corresponding attributes of the CMIP Solution Set. Only attributes, that are qualified as public in the IS, require a corresponding attribute in the CMIP Solution Set.

Table 2: Mapping of attributes

IS Attribute	Attribute of the CMIP SS	Qualifier
supportedTOClasses	supportedTOClasses (ITU-T Recommendation X.745 [10])	M
testActionPerformerId	testActionPerformerId (ITU-T Recommendation X.745 [10])	M
testOutcome	testOutcome (ITU-T Recommendation X.745 [10])	M
testState	testState (ITU-T Recommendation X.745 [10])	M
testerObjectId	testObjectId (ITU-T Recommendation X.745 [10])	M
actualStartTime	actualStartTime (ITU-T Recommendation X.745 [10])	O
actualStopTime	actualStopTime (ITU-T Recommendation X.745 [10])	O
testInvocationId	testInvocationId (ITU-T Recommendation X.745 [10])	M

4.2.3 Mapping of Operations

Table 3 and table 4 map the operations defined in 3GPP TS 32.322 [8] and 3GPP TS 32.312 [6] to corresponding GDMO actions and CMISE services. The operations are qualified either as Mandatory (M) or Optional (O).

The CMISE services are defined in ITU-T Recommendation X.710 [9].

Table 3: Mapping of operations of the Test Management IRP: IS

Interface	Operation	GDMO Action or CMISE of CMIP SS	Qualifier
TestManagementIRPControlOperations	initiateTest	testRequestControlledAction (ITU-T Recommendation X.745 [10])	M
	terminateTest	testTerminateAction (ITU-T Recommendation X.745 [10])	M
TestIManagementRPMonitorOperations	monitorTest	M-GET (CMISE)	M

Table 4: Mapping of operations inherited from the Generic IRP Management: IS

Interface	Operation	GDMO Action or CMISE of CMIP SS	Qualifier
GenericIRPVersionsOperations	getIRPVersion	getTestManagementIRPVersion	M
GenericIRPProfileOperations	getOperationProfile	getTestManagementIRPOperationProfile	O
	getNotificationProfile	getTestManagementIRPNotificationProfile	O

4.2.4 Mapping of Operation Parameters

The tables in the following clauses list the parameters of each operation defined in 3GPP TS 32.322 [8] and their equivalents in the CMIP Solution Set.

4.2.4.1 Parameter Mapping of the Operation *initiateTest*

The operation *initiateTest* is mapped to the GDMO action *testRequestControlledAction* defined in ITU-T Recommendation X.745 [10]. This action shall be implemented using the CMISE M-ACTION service.

All input parameters are mapped to the M-ACTION request parameter 'Action information'. The syntax and semantics of this parameter is specified in ITU-T Recommendation X.745 [10] for the *testRequestControlledAction* by the ASN.1 definition *TestRequestControlledInfo*.

If all tests specified by the IS parameter *toBeInitiatedTests* were successfully instantiated, the output parameter *response* is mapped to the M-ACTION response parameter 'Action reply', which is specified in ITU-T Recommendation X.745 [10] for the *testRequestControlledAction* by the ASN.1 definition *TestRequestControlledResponse*.

If at least one test failed to be instantiated, the output parameter *response* is mapped the M-ACTION parameter 'Errors'. The errors defined in ITU-T Recommendation X.745 [10] for *testRequestControlledAction* are *noSuchMORT, mORTNotAvailable, mistypedTestCategoryInformation, noSuchAssociatedObject, associatedObjectNotAvailable, independentTestInvocationError*.

Table 5: Parameter mapping of the operation *initiateTest*

IS Parameter	IN/OUT	CMIP SS Equivalent	Qualifier
testInvocationInitiator	IN	This parameter is conditional and not used in the CMIP SS.	--
maxTestingStateDuration	IN	M-ACTION parameter 'Action information' (TestRequestControlledInfo): timeoutPeriod	O
toBeInitiatedTests: toBeTestedMORT	IN	M-ACTION parameter 'Action information' (TestRequestControlledInfo): toBeTestedMORTs	O
toBeInitiatedTests: testerObjectClass	IN	M-ACTION parameter 'Action information' (TestRequestControlledInfo): testObjectList: tOClass	M
toBeInitiatedTests: testerObjectInitialAttributeList	IN	M-ACTION parameter 'Action information' (TestRequestControlledInfo): testObjectList: initialAttributeList	O
response	OUT	All tests were successfully initiated: TestRequestControlledResponse: CHOICE independentTestResponseList At least one test failed to be initiated: M-ACTION response parameter 'Errors'	M

4.2.4.2 Parameter Mapping of the Operation *terminateTest*

The operation *terminateTest* is mapped to the GDMO action *testTerminateAction* defined in ITU-T Recommendation X.745 [10]. This action shall be implemented using the CMISE M-ACTION service.

All input parameters are mapped to the M-ACTION request parameter 'Action information'. This parameter is specified for the *testTerminateAction* in ITU-T Recommendation X.745 [10] by the ASN.1 definition *TestTerminateInfo*, which is the CMIP SS equivalent of the IS parameter *toBeTerminatedTests*.

If all tests specified by the IS parameter *toBeTerminatedTests* are successfully terminated, the output parameter *response* is mapped to the M-ACTION response parameter 'Action reply', which is specified in ITU-T Recommendation X.745 [10] for the *testTerminateAction* by the ASN.1 definition *TestTerminateResult*.

If at least one test failed to be terminated, the output parameter *response* is mapped the M-ACTION parameter 'Errors'. The errors defined in ITU-T Recommendation X.745 [10] for *testTerminateAction* are *invalidTestOperation, noSuchTestInvocationId, noSuchTestSessionId, testTerminateError*.

Table 6: Parameter mapping of the operation *terminateTest*

IS Parameter	IN/OUT	CMIP SS Equivalent	Qualifier
toBeTerminatedTests	IN	M-ACTION parameter 'Action information' (TestTerminateInfo): indicatedTests with CHOICE SET OF testInvocationId	M
response	OUT	All tests are successfully terminated: M-ACTION parameter 'Action reply' (TestTerminateResult) At least one test failed to be terminated: M-ACTION response parameter 'Errors'	M

4.2.4.3 Parameter Mapping of the Operation *monitorTest*

The TO attributes reflecting the status of the test can be retrieved by the manager using the CMISE M-GET service. The TO to be monitored is specified by the M-GET request parameter 'Base object instance' and the attributes to be retrieved by the M-GET request parameter 'Attribute identifier list'.

The attribute values are returned in the M-GET response parameter 'Attribute list'.

Table 7: Parameter mapping of the operation *monitorTest*

IS Parameter	IN/OUT	CMIP SS Equivalent	Qualifier
to BeMonitoredTO	IN	M-GET request parameter 'Base object instance'	M
toBeMonitoredAttributes	IN	M-GET request parameter 'Attribute identifier list': attribute identifier of the TO attributes *testState*, *testOutcome* and the other attributes to be monitored	M
monitoredAttributeValues	OUT	M-GET response parameter 'Attribute list': attribute identifier and value of the TO attributes *operationalState*, *proceduralStatus*, *testState* and *testOutcome*	M
error	OUT	M-GET response parameter 'Errors'	M

4.2.5 Mapping of Notifications

The notification *notifyTestResults* is mapped to the GDMO notification *testResultNotification* defined in ITU-T Recommendation X.745 [10]. This notification shall be implemented using the CMISE M-EVENT-REPORT service.

Table 8: Mapping of notifications of the Test Management IRP IS

Interface	Operation	GDMO Notification or CMISE of CMIP SS	Qualifier
TestManagementIRPNotifications	notifyTestResults	testResultNotification	M

4.2.6 Mapping of Notification Parameters

The tables in the following subclauses show the parameters of each notification defined in 3GPP TS 32.322 [8] and their equivalents in the CMIP Solution Set.

4.2.6.1 Parameter Mapping of the Notification *notifyTestResults*

Except for *objectClass*, *objectInstance*, *eventTime* and *notificationType* all parameters defined in the IS are mapped to the M-EVENT-REPORT parameter 'Event information'. The syntax and semantics of this structured parameter are defined for the notification *testResultNotification* in ITU-T Recommendation X.745 [10] by the ASN.1 definition *TestResultInfo*.

Table 9: Parameter mapping of the notification *notifyTestResults*

IS Parameter	CMIP SS Equivalent	Qualifier
objectClass	M-EVENT REPORT parameter 'Managed object class'	M
objectInstance	M-EVENT REPORT parameter 'Managed object instance'	M
notificationId	M-EVENT REPORT parameter 'Event information' (TestResultInfo): notificationIdentifier	O
eventTime	M-EVENT REPORT parameter 'Event time'	M
systemDN	This IS parameter is conditional and not used in the CMIP SS.	--
notificationType	M-EVENT REPORT parameter 'Event type'	M
testInvocationId	M-EVENT REPORT parameter 'Event information' (TestResultInfo): testInvocationId	O
testInvocationInitiator	This IS parameter is conditional and not used in the CMIP SS.	--
testOutcome	M-EVENT REPORT parameter 'Event information' (TestResultInfo): testOutcome	O
mORT	M-EVENT REPORT parameter 'Event information' (TestResultInfo): mORTs	O
proposedRepairActions	M-EVENT REPORT parameter 'Event information' (TestResultInfo): proposedRepairActions	O
additionalInformation	M-EVENT REPORT parameter 'Event information' (TestResultInfo): additionalInformation	O
fileReference	M-EVENT REPORT parameter 'Event information' (TestResultInfo): additionalInformation: fileReference	M see note
fileExpiryDate	M-EVENT REPORT parameter 'Event information' (TestResultInfo): additionalInformation: fileExpiryDate	M see note
NOTE: This parameter contains only information, if the test result data are captured in a file. Otherwise it shall contain no information or be absent.		

5 GDMO Definitions

5.1 Managed Object Classes

5.1.1 testManagementIRP

```
testManagementIRP MANAGED OBJECT CLASS
    DERIVED FROM
        "Rec. X.721 | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY
        testManagementIRPIdPackage,
        testManagementIRPVersionPackage;
    CONDITIONAL PACKAGES
        testManagementIRPProfilePackage PRESENT IF "an instance supports it";
REGISTERED AS {ts32-324ObjectClass 1};
```

5.2 Packages

5.2.1 testManagementIRPIdPackage

```
testManagementIRPIdPackage PACKAGE
    BEHAVIOUR
        testManagementIRPIdPackageBehaviour;
    ATTRIBUTES
        testManagementIRPId;
    REGISTERED AS {ts32-324Package 1};

testManagementIRPIdPackageBehaviour BEHAVIOUR
DEFINED AS
"An instance of the MOC testManagementIRP is identified by the value of the attribute
testManagementIRPId.";
```

5.2.2 testManagementIRPVersionPackage

```
testManagementIRPVersionPackage PACKAGE
    BEHAVIOUR
        testManagementIRPVersionPackageBehaviour;
    ATTRIBUTES
        supportedTestManagementIRPVersions      GET;
    ACTIONS
        getTestManagementIRPVersion;
REGISTERED AS {ts32-324Package 2};

testManagementIRPVersionPackageBehaviour BEHAVIOUR
DEFINED AS
"This package has been defined to allow the IRPManager to get information about the Test Management
IRP versions supported by the IRPAgent.
The attribute supportedTestManagementIRPVersions indicates all versions of the Test Management IRP
currently supported by the IRPAgent.
The action getTestManagementIRPVersion is invoked by the IRPManager to get information about the
Test Management IRP versions supported by the IRPAgent.";
```

5.2.3 testManagementIRPProfilePackage

```
testManagementIRPProfilePackage PACKAGE
    BEHAVIOUR
        testManagementIRPProfilePackageBehaviour;
    ACTIONS
        getTestManagementIRPOperationProfile,
        getTestManagementIRPNotificationProfile;
REGISTERED AS {ts32-324Package 3};

testManagementIRPProfilePackageBehaviour BEHAVIOUR
DEFINED AS
"This package has been defined to allow the Manager to get detailed information about the profile of
the Test Management IRP. The action getOperationProfile is invoked by the Manager to get detailed
information about the operations supported by the Test Management IRP. The action
getNotificationProfile is invoked by the Manager to get detailed information about the notifications
supported by the Test Management IRP.";
```

5.3 Actions

5.3.1 getTestManagementIRPVersion (M)

```
getTestManagementIRPVersion ACTION
    BEHAVIOUR
        getTestManagementIRPVersionBehaviour;
    MODE
        CONFIRMED;
    WITH REPLY SYNTAX
        TS32-324TypeModule.GetTestManagementIRPVersionReply;
REGISTERED AS {ts32-324Action 1};

getTestManagementIRPVersionBehaviour BEHAVIOUR
DEFINED AS
"The behaviour of this functionality is defined within 32.322 – below provides an overview and CMIP
specific semantics.
The Manager invokes this action to get information about the Test Management IRP versions supported
by the Agent. The M-ACTION request parameter 'Action information' contains no data. The M-ACTION
response parameter 'Action reply' is composed of the following data:
    • versionNumbersList
    • status
The parameter versionNumbersList defines a list of Test Management IRP versions supported by the
Agent. A list containing no element, i.e. a NULL list, means that the concerned Agent doesn't
support any version of the Test Management IRP. The parameter status contains the results of the
Manager action. Possible values: noError (0), error (the value indicates the reason of the error).";
```

5.3.2 getTestManagementIRPOperationProfile (O)

```
getTestManagementIRPOperationProfile ACTION
    BEHAVIOUR
        getTestManagementIRPOperationProfileBehaviour;
    MODE
        CONFIRMED;
    WITH INFORMATION SYNTAX
        TS32-324TypeModule.IRPVersionNumber;
    WITH REPLY SYNTAX
        TS32-324TypeModule.GetOperationProfileReply;
REGISTERED AS {ts32-324Action 3};

getTestManagementIRPOperationProfileBehaviour BEHAVIOUR
DEFINED AS
"The behaviour of this functionality is defined within 32.322 – below provides an overview and CMIP
specific semantics.
A Manager invokes this action to enquiry about the operation profile (supported operations and
supported parameters) for this specific Test Management IRP version.
The M-ACTION request parameter 'Action information' contains the following data:
    • irpVersionNumber
This mandatory parameter identifies the Test Management IRP version.
The M-ACTION response 'Action reply' is composed of the following data:
    • operationNameProfile
    • operationParameterProfile
    • status
```

The parameter *operationNameProfile* contains a list of operation names. The parameter *operationParameterProfile* contains a set of elements, each element corresponds to an operation name and is composed by a set of parameter names. The parameter *status* contains the results of this action. Possible values: noError (0), error (the value indicates the reason of the error).";

5.3.3 getTestManagementIRPNotificationProfile (O)

```
getTestManagementIRPNotificationProfile ACTION
    BEHAVIOUR
        getTestManagementIRPNotificationProfileBehaviour;
    MODE
        CONFIRMED;
    WITH INFORMATION SYNTAX
        TS32-324TypeModule.IRPVersionNumber;
    WITH REPLY SYNTAX
        TS32-324TypeModule.GetNotificationProfileReply;
REGISTERED AS {ts32-324Action 2};

getTestManagementIRPNotificationProfileBehaviour BEHAVIOUR
DEFINED AS
"The behaviour of this functionality is defined within 32.322 – below provides an overview and CMIP
specific semantics.
A Manager invokes this action to enquiry about the notification profile (supported notifications and
supported parameters) for this specific Test Management IRP version.
The M-ACTION request parameter 'Action information' contains the following data:
    • irpVersionNumber
This mandatory parameter identifies the Test Managemnt IRP version.
The M-ACTION response parameter 'Action reply' is composed of the following data:
    • notificationNameProfile
    • notificationParameterProfile
    • status
The parameter notificationNameProfile contains a list of notification names, i.e. a NULL list means
that the Test Management IRP doesn't support any notification. The parameter
notificationParameterProfile contains a set of elements, each element corresponds to a notification
name and is composed by a set of parameter names. The parameter status contains the results of this
action. Possible values: noError (0), error (the value indicates the reason of the error).";
```

5.4 Attributes

5.4.1 testManagementIRPId

```
testManagementIRPId ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
        TS32-324TypeModule.GeneralObjectId;
    MATCHES FOR
        EQUALITY;
    BEHAVIOUR
        testManagementIRPIdBehaviour;
REGISTERED AS {ts32-324Attribute 1};

testManagementIRPIdBehaviour BEHAVIOUR
DEFINED AS
"This attribute names an instance of the MOC testManagementIRP.";
```

5.4.2 supportedTestManagementIRPVersions

```
supportedTestManagementIRPVersions ATTRIBUTE
    WITH ATTRIBUTE SYNTAX
        TS32-324TypeModule.SupportedTestManagementIRPVersions;
    MATCHES FOR
        EQUALITY;
    BEHAVIOUR
        supportedTestManagementIRPVersionsBehaviour;
REGISTERED AS {ts32-324Attribute 2};

supportedTestManagementIRPVersionsBehaviour BEHAVIOUR
DEFINED AS
"This attribute provides the information concerning the Test Management IRP versions currently
supported by the Agent.";
```

5.5 Parameters

5.5.1 fileReference

```
fileReference PARAMETER
    CONTEXT
        TS32-324TypeModule.TestResultInfo.additionalInformation;
WITH SYNTAX
        TS32-324TypeModule.FileReference;
REGISTERED AS {ts32-324Parameter 1};
```

5.5.2 fileExpiryDate

```
fileExpiryDate PARAMETER
    CONTEXT
        TS32-324TypeModule.TestResultInfo.additionalInformation;
WITH SYNTAX
        TS32-324TypeModule.FileExpiryDate;
REGISTERED AS {ts32-324Parameter 2};
```

6 ASN.1 Definitions

```
TS32-324TypeModule {itu-t(0) identified-organization(4) etsi(0) mobileDomain(0) umts-Operation-
Maintenance(3) ts32-324(324) informationModel(0) asn1Module(2) version1(1)}

DEFINITIONS IMPLICIT TAGS ::=
BEGIN
--EXPORTS everything
IMPORTS

TestResultInfo
FROM Test-ASN1Module { joint-iso-ccitt ms(9) function(2) part12(12) asn1Module(2) 0 };

baseNodeUMTS            OBJECT IDENTIFIER ::= { itu-t (0) identified-organization (4) etsi (0)
                                                mobileDomain (0) umts-Operation-Maintenance (3)}

ts32-324Prefix               OBJECT IDENTIFIER ::= {baseNodeUMTS ts32-324          (324)}
ts32-324InfoModel       OBJECT IDENTIFIER ::= {ts32-324Prefix informationModel      (  0)}
ts32-324ObjectClass     OBJECT IDENTIFIER ::= {ts32-324InfoModel managedObjectClass (  3)}
ts32-324Package         OBJECT IDENTIFIER ::= {ts32-324InfoModel package            (  4)}
ts32-324Parameter       OBJECT IDENTIFIER ::= {ts32-324InfoModel parameter          (  5)}
ts32-324Attribute       OBJECT IDENTIFIER ::= {ts32-324InfoModel attribute          (  7)}
ts32-324Action          OBJECT IDENTIFIER ::= {ts32-324InfoModel action             (  9)}
ts32-324Notification    OBJECT IDENTIFIER ::= {ts32-324InfoModel notification       ( 10)}

ErrorCauses ::= ENUMERATED
{
noError (0),                 -- operation / notification successfully performed
unspecifiedErrorReason (255)  -- operation failed, specific error unknown
}

FileReference ::= GraphicString

FileExpiryDate ::= GeneralizedTime

GetNotificationProfileReply ::= SEQUENCE
{
notificationNameProfile       NotificationList,
notificationParameterProfile  ParameterListOfList,
status                        ErrorCauses
}

GetOperationProfileReply ::= SEQUENCE
{
operationNameProfile          OperationList,
operationParameterProfile     ParameterListOfList,
status                        ErrorCauses
}
```

```
GetTestManagementIRPVersionReply ::= SEQUENCE
{
versionNumberList            SupportedTestManagementIRPVersions,
status                       ErrorCauses
}

GeneralObjectId ::= INTEGER

IRPVersionNumber ::= GraphicString

NotificationList ::= SET OF NotificationName

NotificationName ::= GraphicString

OperationList ::= SET OF OperationName

OperationName ::= GraphicString

ParameterList ::= SET OF ParameterName

ParameterListOfList ::= SET OF ParameterList

ParameterName ::= GraphicString

SupportedTestManagementIRPVersions ::= SET OF IRPVersionNumber

END – of module TS32-324TypeModule
```

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2002	S_16	SP-020328	--	--	Submitted to TSG SA #16 for Information	1.0.0	
Sep 2002	S_17	SP-020459	--	--	Submitted to TSG SA #17 for Approval	2.0.0	5.0.0
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