**3GPP TSG-SA5 Meeting #137eS5-214308**

**10 May - 19 May 2021**

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| *CR-Form-v11.4* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.435** | **CR** | **0011** | **rev** | **1** | **Current version:** | **16.0.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ePM\_KPI\_5G | | | | |  | ***Date:*** | | | 2021-04-30 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | There is no consistent way to report exceptions, or distinguish ambiguous values, using the existing PM XML Schema. | | | | | | | | |
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| ***Summary of change:*** | | Add standardized element to report measurement result exceptions in the PM XML Schema. | | | | | | | | |
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| ***Consequences if not approved:*** | | Vendors requiring such exception reporting must do so with their own non-standard elements, and/or documentation. | | | | | | | | |
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| ***Clauses affected:*** | | 4.1, 4.2.1, 4.2.2, A.X (NEW), A.X (NEW) | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
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| ***Other comments:*** | | Forge link: <https://forge.3gpp.org/rep/sa5/MnS/tree/S5_213397_Rel_17_CR_32.435_Add_Support_for_Exception_Reporting_to_PM_File_XML_Schema/xsd> | | | | | | | | |

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| **1st Modified Section** |

## 4.1 Mapping table

Table 4.1 maps the file content items in the 3GPP TS 32.432([5]) document to those used in the XML schema based file format definitions. XML tag attributes are useful where data values bind tightly to its parent element. They have been used where appropriate.

Table 4.1 Mapping of File Content Items to XML tags

| File Content Item | XML schema based XML tag | Description |
| --- | --- | --- |
| measDataCollection | measCollecFile |  |
| measFileHeader | fileHeader |  |
| measData | measData |  |
| measFileFooter | fileFooter |  |
| fileFormatVersion | fileHeader fileFormatVersion |  |
| senderName | fileHeader dnPrefix  and fileSender localDn | For the XML schema based XML format, the DN is split into the DN prefix and the Local DN (LDN) (see 3GPP TS 32.300 [6]). XML attribute specification "dnPrefix" may be absent in case the DN prefix is not configured in the sender. XML attribute specification "localDn" may be absent in case the LDN is not configured in the sender. |
| senderType | fileSender elementType | For the XML schema based XML format, XML attribute specification "elementType" may be absent in case the "senderType" is not configured in the sender. |
| vendorName | fileHeader vendorName | For the XML schema based XML format, XML attribute specification "vendorName" may be absent in case the "vendorName" is not configured in the sender. |
| collectionBeginTime | measCollec beginTime |  |
| neId | managedElement |  |
| neUserName | managedElement userLabel | For the XML schema based XML format, XML attribute specification "userLabel" may be absent in case the "nEUserName" is not configured in the CM applications. |
| neDistinguishedName | fileHeader dnPrefix  and managedElement localDn | For the XML schema based XML format, the DN is split into the DN prefix and the Local DN (LDN) (see 3GPP TS 32.300 [6]). XML attribute specification "localDn" may be absent in case the LDN is not configured in the CM applications. |
| neSoftwareVersion | managedElement swVersion | For the XML schema based XML format, XML attribute specification "swVersion" may be absent in case the "nESoftwareVersion" is not configured in the CM applications. |
| measInfo | measInfo |  |
| measInfoId | measInfoId |  |
| measTimeStamp | granPeriod endTime |  |
| jobId | job jobId |  |
| granularityPeriod | granPeriod duration | For the XML schema based XML format, the value of XML attribute specification "duration" shall use the truncated representation "PT*n*S" (see [10]). |
| reportingPeriod | repPeriod duration | For the XML schema based XML format, the value of XML attribute specification "duration" shall use the truncated representation "PT*n*S" (see [10]). |
| measTypes | measTypes  or measType | For the XML schema based XML format, depending on sender's choice for optional positioning presence, either XML element "measTypes" or XML elements "measType" will be used. |
| measValues | measValue |  |
| measObjInstId | measValue measObjLdn |  |
| measResults | measResults  or  r | For the XML schema based XML format, depending on sender's choice for optional positioning presence, either XML element "measResults" or XML elements "r" will be used. |
| exceptionCode | exceptionCode | In the event of error this element provides the exception codes.  If no errors occur then this element is absent.  For reporting with optional positioning the attribute p value is same as that of the associated element r.  For reporting without optional positioning the attribute measType value is same as that of the associated value in measTypes. |
| suspectFlag | suspect |  |
| timeStamp | measCollec endTime |  |
| There is no corresponding File Content Item. | measType p | An optional positioning XML attribute specification of XML element "measType" (XML schema based), used to identify a measurement type for the purpose of correlation to a result. The value of this XML attribute specification is expected to be a non-zero, non-negative integer value that is unique for each instance of XML element "measType" that is contained within the measurement data collection file. |
| There is no corresponding File Content Item. | r p | An optional positioning XML attribute specification of XML element "r", used to correlate a result to a measurement type. The value of this XML attribute specification should match the value of XML attribute specification "p" of the corresponding XML element "measType" (XML schema based). |

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| **2nd Modified Section** |

### 4.2.1 Void

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| **3rd Modified Section** |

### 4.2.2 Measurement collection data file XML schema

The following XML schema measCollec.xsd is the schema for measurement collection data XML files:

<?xml version="1.0" encoding="UTF-8"?>  
  
<!--  
 3GPP TS 32.435 Performance Measurement XML file format definition  
 data file XML schema  
 measCollec.xsd  
-->  
  
<schema  
 targetNamespace=  
"http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec"  
 elementFormDefault="qualified"  
 xmlns="http://www.w3.org/2001/XMLSchema"  
 xmlns:mc=  
"http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec"  
>  
  
 <!-- Measurement collection data file root XML element -->  
  
 <element name="measCollecFile">  
 <complexType>  
 <sequence>  
 <element name="fileHeader">  
 <complexType>  
 <sequence>  
 <element name="fileSender">  
 <complexType>  
 <attribute name="localDn" type="string" use="optional"/>  
 <attribute name="elementType" type="string" use="optional"/>  
 </complexType>  
 </element>  
 <element name="measCollec">  
 <complexType>  
 <attribute name="beginTime" type="dateTime" use="required"/>  
 </complexType>  
 </element>  
 </sequence>  
 <attribute name="fileFormatVersion" type="string" use="required"/>  
 <attribute name="vendorName" type="string" use="optional"/>  
 <attribute name="dnPrefix" type="string" use="optional"/>  
 </complexType>  
 </element>  
 <element name="measData" minOccurs="0" maxOccurs="unbounded">  
 <complexType>  
 <sequence>  
 <element name="managedElement">  
 <complexType>  
 <attribute name="localDn" type="string" use="optional"/>  
 <attribute name="userLabel" type="string" use="optional"/>  
 <attribute name="swVersion" type="string" use="optional"/>  
 </complexType>  
 </element>  
 <element name="measInfo" minOccurs="0" maxOccurs="unbounded">  
 <complexType>  
 <sequence>  
 <element name="job" minOccurs="0">  
 <complexType>  
 <attribute name="jobId" type="string" use="required"/>  
 </complexType>  
 </element>  
 <element name="granPeriod">  
 <complexType>  
 <attribute  
 name="duration"  
 type="duration"  
 use="required"  
 />  
 <attribute  
 name="endTime"  
 type="dateTime"  
 use="required"  
 />  
 </complexType>  
 </element>  
 <element name="repPeriod" minOccurs="0">  
 <complexType>  
 <attribute name="duration"  
 type="duration" use="required"/>  
 </complexType>  
 </element>  
 <choice>  
 <element name="measTypes">  
 <simpleType>  
 <list itemType="Name"/>  
 </simpleType>  
 </element>

<element name="exceptionCode" minOccurs="0" maxOccurs="unbounded">

<complexType>

<simpleContent>

<extension base="string">

<attribute name="measType" type="string" use="required"/>

</extension>

</simpleContent>

</complexType>

</element>  
 <element name="measType"  
 minOccurs="0" maxOccurs="unbounded">  
 <complexType>  
 <simpleContent>  
 <extension base="Name">  
 <attribute name="p"  
 type="positiveInteger" use="required"/>  
 </extension>  
 </simpleContent>  
 </complexType>  
 </element>  
 </choice>  
 <element name="measValue"  
 minOccurs="0" maxOccurs="unbounded">  
 <complexType>  
 <sequence>  
 <choice>  
 <element name="measResults">  
 <simpleType>  
 <list itemType="mc:measResultType"/>  
 </simpleType>  
 </element>  
 <element name="r"  
 minOccurs="0" maxOccurs="unbounded">  
 <complexType>  
 <simpleContent>  
 <extension base="mc:measResultType">  
 <attribute name="p" type="positiveInteger"  
 use="required"/>  
 </extension>  
 </simpleContent>  
 </complexType>  
 </element>

<element name="exceptionCode" minOccurs="0" maxOccurs="unbounded">

<complexType>

<simpleContent>

<extension base="string">

<attribute name="p" type="positiveInteger" use="required"/>

</extension>

</simpleContent>

</complexType>

</element>  
 </choice>  
 <element name="suspect" type="boolean" minOccurs="0"/>  
 </sequence>  
 <attribute name="measObjLdn"  
 type="string" use="required"/>  
 </complexType>  
 </element>  
 </sequence>

<attribute name="measInfoId" type="string" use="optional"/>  
 </complexType>  
 </element>  
 </sequence>  
 </complexType>  
 </element>  
 <element name="fileFooter">  
 <complexType>  
 <sequence>  
 <element name="measCollec">  
 <complexType>  
 <attribute name="endTime" type="dateTime" use="required"/>  
 </complexType>  
 </element>  
 </sequence>  
 </complexType>  
 </element>  
 </sequence>  
 </complexType>  
 </element>  
  
 <simpleType name="measResultType">  
 <union memberTypes="float">  
 <simpleType>  
 <restriction base="string">  
 <enumeration value="NIL"/>  
 </restriction>  
 </simpleType>  
 </union>  
 </simpleType>  
  
</schema>

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| **3rd Modified Section** |

# A.X XML schema based XML measurement report file with use of optional positioning attributes on measurement types and results, and exception code reporting

<?xml version="1.0" encoding="UTF-8"?>

<?xml-stylesheet type="text/xsl" href="MeasDataCollection.xsl"?>

<measCollecFile xmlns="http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec">

<fileHeader fileFormatVersion="32.435 V7.0" vendorName="Company NN" dnPrefix="DC=a1.companyNN.com,SubNetwork=1,IRPAgent=1">

<fileSender localDn="SubNetwork=CountryNN,MeContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1" elementType="RNC"/>

<measCollec beginTime="2000-03-01T14:00:00+02:00"/>

</fileHeader>

<measData>

<managedElement localDn="SubNetwork=CountryNN,MeContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1" userLabel="RNC Telecomville"/>

<measInfo>

<job jobId="1231"/>

<granPeriod duration="PT900S" endTime="2000-03-01T14:14:30+02:00"/>

<repPeriod duration="PT1800S"/>

<measType p="1">attTCHSeizures</measType>

<measType p="2">succTCHSeizures</measType>

<measType p="3">attImmediateAssignProcs</measType>

<measType p="4">succImmediateAssignProcs</measType>

<measValue measObjLdn="RncFunction=RF-1,UtranCell=Gbg-997">

<r p="1">234</r>

<r p="2"></r>

<r p="3">567</r>

<r p="4"></r>

**<exceptionCode p="2">Deregistered</exceptionCode>  
 <exceptionCode p="4">CounterWrapped</exceptionCode>**

</measValue>

<measValue measObjLdn="RncFunction=RF-1,UtranCell=Gbg-998">

<r p="1">890</r>

<r p="2">901</r>

<r p="3">123</r>

<r p="4">234</r>

</measValue>

<measValue measObjLdn="RncFunction=RF-1,UtranCell=Gbg-999">

<r p="1">456</r>

<r p="2">567</r>

<r p="3">678</r>

<r p="4">789</r>

<suspect>true</suspect>

</measValue>

</measInfo>

</measData>

<fileFooter>

<measCollec endTime="2000-03-01T14:15:00+02:00"/>

</fileFooter>

</measCollecFile>

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| **4th Modified Section** |

# A.X XML schema based XML measurement report file without use of optional positioning attributes on measurement types and results, and exception code reporting

<?xml version="1.0" encoding="UTF-8"?>

<?xml-stylesheet type="text/xsl" href="MeasDataCollection.xsl"?>

<measCollecFile xmlns="http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec http://www.3gpp.org/ftp/specs/archive/32\_series/32.435#measCollec">

<fileHeader fileFormatVersion="32.435 V7.0" vendorName="Company NN" dnPrefix="DC=a1.companyNN.com,SubNetwork=1,IRPAgent=1">

<fileSender localDn="SubNetwork=CountryNN,MeContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1" elementType="RNC"/>

<measCollec beginTime="2000-03-01T14:00:00+02:00"/>

</fileHeader>

<measData>

<managedElement localDn="SubNetwork=CountryNN,MeContext=MEC-Gbg-1,ManagedElement=RNC-Gbg-1" userLabel="RNC Telecomville"/>

<measInfo>

<job jobId="1231"/>

<granPeriod duration="PT900S" endTime="2000-03-01T14:14:30+02:00"/>

<repPeriod duration="PT1800S"/>

<measTypes>attTCHSeizures succTCHSeizures attImmediateAssignProcs

succImmediateAssignProcs</measTypes>

<measValue measObjLdn="RncFunction=RF-1,UtranCell=Gbg-997">

<measResults>234 345 567 789</measResults>

<exceptionCode measType=”succTCHSeizures”>**Deregistered**</exceptionCode>

                <exceptionCode measType=”succImmediateAssignProcs”>**CounterWrapped**</exceptionCode>

</measValue>

<measValue measObjLdn="RncFunction=RF-1,UtranCell=Gbg-998">

<measResults>890 901 123 234</measResults>

</measValue>

<measValue measObjLdn="RncFunction=RF-1,UtranCell=Gbg-999">

<measResults>456 567 678 789</measResults>

<suspect>true</suspect>

</measValue>

</measInfo>

</measData>

<fileFooter>

<measCollec endTime="2000-03-01T14:15:00+02:00"/>

</fileFooter>

</measCollecFile>