**3GPP TSG-CT WG1 Meeting #126-eC1-20xxxx**

**Electronic meeting, 15-23 October 2020 (was C1-206102)**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.282** | **CR** | **0187** | **rev** | **1** | **Current version:** | **17.0.0** |  |
|  |
| *For* [***HE******LP***](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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Add altitude, timestamp to MCData location  |
|  |  |
| ***Source to WG:*** | FirstNet |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | enh3MCPTT-CT |  | ***Date:*** | 15 October 2020 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 canbe 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)Rel-17 (Release 17)* |
|  |  |
| ***Reason for change:*** | Location information must be able to support an altitude (z-axis) value. In addition, a timestamp of the location information is required. |
|  |  |
| ***Summary of change:*** | The Location XML schema is updated to support an altitude component for the CoordinateType element.A timestamp is added to the location report.The Payload IE is updated to contain two new fields, LOCATION ALTITUDE and LOCATION TIMESTAMP.A reference is added to ISO 8601 as the format for the timestamp.Clarification is added in Table 15.2.13-3 that the longitude and latitude 3 byte values are formatted per 3GPP TS 23.032. |
|  |  |
| ***Consequences if not approved:*** | It will not be possible to carry an altitude component for location or to indicate the time at which the location measurement was taken. |
|  |  |
| ***Clauses affected:*** | 2, 15.2.13, D.4.2, D.4.3 |
|  |  |
|  | **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 ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev 1:A timestamp is added to the location report.The Payload IE is updated to contain two new fields, LOCATION ALTITUDE and LOCATION TIMESTAMP.A reference is added to ISO 8601 as the format for the timestamp.Clarification is added in Table 15.2.13-3 that the longitude and latitude 3 byte values are formatted per 3GPP TS 23.032. |

**\* \* \* \* \* FIRST CHANGE \* \* \* \* \***

# 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 TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.282: "Functional architecture and information flows to support Mission Critical Data (MCData); Stage 2";

[3] 3GPP TS 23.280:" Common functional architecture to support mission critical services; Stage 2";

[4] IETF RFC 3261 (June 2002): "SIP: Session Initiation Protocol".

[5] 3GPP TS 24.229: "IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[6] IETF RFC 3428 (December 2002): "Session Initiation Protocol (SIP) Extension for Instant Messaging".

[7] IETF RFC 6050 (November 2010): "A Session Initiation Protocol (SIP) Extension for the Identification of Services".

[8] IETF RFC 3841 (August 2004): "Caller Preferences for the Session Initiation Protocol (SIP)".

[9] IETF RFC 4826 (May 2007): "Extensible Markup Language (XML) Formats for Representing Resource Lists".

[10] 3GPP TS 24.379: "Mission Critical Push To Talk (MCPTT) call control Protocol specification".

[11] 3GPP TS 24.481: "Mission Critical Services (MCS) group management Protocol specification".

[12] 3GPP TS 24.484: "Mission Critical Services (MCS) configuration management Protocol specification".

[13] IETF RFC 4483 (May 2006): "A Mechanism for Content Indirection in Session Initiation Protocol (SIP) Messages.

[14] IETF RFC 4122 (July 2005): "A Universally Unique IDentifier (UUID) URN Namespace".

[15] 3GPP TS 24.582: "Mission Critical Data (MCData) media plane control Protocol specification";

[16] IETF RFC 3840 (August 2004): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

[17] IETF RFC 4975 (September 2007): "The Message Session Relay Protocol (MSRP)".

[18] IETF RFC 5366 (October 2008): "Conference Establishment Using Request-Contained Lists in the Session Initiation Protocol (SIP)".

[19] IETF RFC 6135 (February 2011): "An Alternative Connection Model for the Message Session Relay Protocol (MSRP) ".

[20] IETF RFC 6714 (August 2012): "Connection Establishment for Media Anchoring (CEMA) for the Message Session Relay Protocol (MSRP)".

[21] IETF RFC 6086 (January 2011): "Session Initiation Protocol (SIP) INFO Method and Package Framework".

[22] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[23] IETF RFC 7231: "Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content".

[24] 3GPP TS 24.482: "Mission Critical Services (MCS) identity management Protocol specification.

[25] 3GPP TS 24.334: "Proximity-services (ProSe) User Equipment (UE) to Proximity-services (ProSe) Function Protocol aspects; Stage 3".

[26] 3GPP TS 33.180: "Security of the Mission Critical Service".

[27] void

[28] W3C: "XML Encryption Syntax and Processing Version 1.1", <https://www.w3.org/TR/xmlenc-core1/>.

[29] W3C: "XML Signature Syntax and Processing (Second Edition)", <http://www.w3.org/TR/xmldsig-core/>.

[30] IETF RFC 4648 (October 2006): "The Base16, Base32, and Base64 Data Encodings".

[31] 3GPP TS 23.003: "Numbering, addressing and identification".

[32] IETF RFC 2045 (November 1996): "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies".

[33] IETF RFC 2392 (August 1998): "Content-ID and Message-ID Uniform Resource Locators".

[34] IETF RFC 3903 (October 2004): "Session Initiation Protocol (SIP) Extension for Event State Publication".

[35] IETF RFC 4354 (January 2006): "A Session Initiation Protocol (SIP) Event Package and Data Format for Various Settings in Support for the Push-to-Talk over Cellular (PoC) Service".

[36] IETF RFC 6665 (July 2012): "SIP-Specific Event Notification".

[37] 3GPP TS 29.283: "Diameter Data Management Applications".

[38] IETF RFC 4028 (April 2005): "Session Timers in the Session Initiation Protocol (SIP)".

[39] IETF RFC 3856 (August 2004): "A Presence Event Package for the Session Initiation Protocol (SIP)".

[40] IETF RFC 3863 (August 2004): "Presence Information Data Format (PIDF)".

[41] IETF RFC 4661 (September 2006): "An Extensible Markup Language (XML)-Based Format for Event Notification Filtering".

[42] 3GPP TS 24.483: "Mission Critical Services (MCS) Management Object (MO)".

[43] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".

[44] IETF RFC 5627 (October 2009): "Obtaining and Using Globally Routable User Agent URIs (GRUUs) in the Session Initiation Protocol (SIP)".

[45] IETF RFC 4567 (July 2006): "Key Management Extensions for Session Description Protocol (SDP) and Real Time Streaming Protocol (RTSP)".

[46] IETF RFC 3986 (January 2005): "Uniform Resource Identifier (URI): Generic Syntax".

[47] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".

[48] 3GPP TS 29.582: "Mission Critical Data (MCData) signalling control interworking with LMR systems; Protocol specification".

[49] 3GPP TS 29.214: "Policy and Charging Control over Rx reference point".

[50] IETF RFC 5245 (April 2010): "Interactive Connectivity Establishment (ICE): A Protocol for Network Address Translator (NAT) Traversal for Offer Answer Protocols".

[51] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".

[52] IETF RFC 7647 (September 2015): "Clarifications for the use of REFER with RFC6665".

[53] IETF RFC 4488 (May 2006): "Suppression of Session Initiation Protocol (SIP) REFER Method Implicit Subscription".

[54] IETF RFC 4538 (June 2006): "Request Authorization through Dialog Identification in the Session Initiation Protocol (SIP)".

[55] IETF RFC 6509 (February 2012): "MIKEY-SAKKE: Sakai-Kasahara Key Encryption in Multimedia Internet KEYing (MIKEY)".

[56] 3GPP TS 23.468: "Group Communication System Enablers for LTE (GCSE\_LTE); Stage 2".

[57] 3GPP TS 29.468: "Group Communication System Enablers for LTE (GCSE\_LTE); MB2 reference point; Stage 3".

[58] Void.

[59] IETF RFC 5761 (April 2010): "Multiplexing RTP Data and Control Packets on a Single Port".

[60] IETF RFC 5795 (March 2010): "The RObust Header Compression (ROHC) Framework".

[61] IETF RFC 3095 (July 2001): "RObust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed".

[62] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[63] 3GPP TS 23.203: "Policy and charging control architecture".

[64] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".

[65] 3GPP TS 29.199-09: "Open Service Access (OSA); Parlay X web services; Part 9: Terminal location".

[66] OMA-TS-REST\_NetAPI\_NMS-V1\_0-20190528-C: "RESTful Network API for Network Message Storage".

[67] IETF RFC 8101 (March 2017): "IANA Registration of New Session Initiation Protocol (SIP) Resource-Priority Namespace for Mission Critical Push To Talk Service".

[68] 3GPP TS 22.280: "Mission Critical Services Common Requirements (MCCoRe); Stage 1".

[69] IETF RFC 5547: "A Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer".

[70] IETF RFC 1738: "Uniform Resource Locators (URL)".

[71] IETF RFC 4566 (July 2006): "SDP: Session Description Protocol".

[72] IETF RFC 5888 (June 2010): "The Session Description Protocol (SDP) Grouping Framework".

[xx] ISO 8601 (2019): "Date and Time – Representations for Information Exchange".

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

### 15.2.13 Payload

The Payload information element contains the payload intended for the recipient user or application;

The Payload information element is coded as shown in Figure 15.2.13-1, Table 15.2.13-1, Table 15.2.13-2 and Table 15.2.13-3.

The Payload information element is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Payload IEI | octet 1 |
| Length of Payload contents | octet 2 |
|  | octet 3 |
|  | octet 4 |
| Payload contents |  |
|  | octet n |

Figure 15.2.13-1: Payload information element

Table 15.2.13-1: Payload contents

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Payload content type | octet 4 |
|  | octet 5 |
| Payload data |  |
|  | octet n |

Table 15.2.13-2: Payload content type

|  |  |  |
| --- | --- | --- |
| Bits |  |  |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
|  |  |  |  |  |  |  |  |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | TEXT |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | BINARY |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |  | HYPERLINKS |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | FILEURL |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |  | LOCATION |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |  | ENHANCED STATUS |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |  | Value allocated for use in interworking (NOTE) |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |  | LOCATION ALTITUDE |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |  | LOCATION TIMESTAMP |
| All other values are reserved. |
| NOTE: Usage of this value is described in 3GPP TS 29.582 [48]. |

Table 15.2.13-3: Payload data

|  |
| --- |
| Payload data is included in octet 5 to octet n; Max value of 65535 octets.Payload data contains the payload destined for the user or application.A file URL is encoded as specified in IETF RFC 1738 [70].The length of the location information payload content is 6 bytes. The first 3 bytes contain the latitude information and the next 3 bytes contain the longitude information coded as in subclause 6.1 in 3GPP TS 23.032 [47].The length of the location altitude payload content is 2 bytes coded as in subclause 6.3 in 3GPP TS 23.032 [47].The length of location timestamp is contained as a binary value in the first octet of the payload content, and the value of the location timestamp is contained in the remaining octets of the payload content in the format "yyyy-mm-dd hh:mm:ss.fffff" per ISO 8601 [xx]. |

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

## D.4.2 XML schema

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

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:mcdataloc="urn:3gpp:ns:mcdataLocationInfo:1.0" targetNamespace="urn:3gpp:ns:mcdataLocationInfo:1.0" elementFormDefault="qualified" attributeFormDefault="unqualified"

xmlns:xenc="http://www.w3.org/2001/04/xmlenc#">

 <xs:import namespace="http://www.w3.org/2001/04/xmlenc#"/>

 <xs:element name="location-info" id="loc">

 <xs:annotation>

 <xs:documentation>Root element, contains all information related to location configuration, location request and location reporting for the MCData service</xs:documentation>

 </xs:annotation>

 <xs:complexType>

 <xs:choice>

 <xs:element name="Configuration" type="mcdataloc:tConfigurationType"/>

 <xs:element name="Request" type="mcdataloc:tRequestType"/>

 <xs:element name="Report" type="mcdataloc:tReportType"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:choice>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 </xs:element>

 <xs:complexType name="tConfigurationType">

 <xs:sequence>

 <xs:element name="NonEmergencyLocationInformation" type="mcdataloc:tRequestedLocationType" minOccurs="0"/>

 <xs:element name="EmergencyLocationInformation" type="mcdataloc:tRequestedLocationType" minOccurs="0"/>

 <xs:element name="TriggeringCriteria" type="mcdataloc:TriggeringCriteriaType"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:attribute name="ConfigScope">

 <xs:simpleType>

 <xs:restriction base="xs:string">

 <xs:enumeration value="Full"/>

 <xs:enumeration value="Update"/>

 </xs:restriction>

 </xs:simpleType>

 </xs:attribute>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tRequestType">

 <xs:complexContent>

 <xs:extension base="mcdataloc:tEmptyType">

 <xs:attribute name="RequestId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:complexContent>

 </xs:complexType>

 <xs:complexType name="tReportType">

 <xs:sequence>

 <xs:element name="TriggerId" type="xs:string" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="CurrentLocation" type="mcdataloc:tCurrentLocationType"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:attribute name="ReportID" type="xs:string" use="optional"/>

 <xs:attribute name="ReportType" use="required">

 <xs:simpleType>

 <xs:restriction base="xs:string">

 <xs:enumeration value="Emergency"/>

 <xs:enumeration value="NonEmergency"/>

 </xs:restriction>

 </xs:simpleType>

 </xs:attribute>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="TriggeringCriteriaType">

 <xs:sequence>

 <xs:element name="CellChange" type="mcdataloc:tCellChange" minOccurs="0"/>

 <xs:element name="TrackingAreaChange" type="mcdataloc:tTrackingAreaChangeType" minOccurs="0"/>

 <xs:element name="PlmnChange" type="mcdataloc:tPlmnChangeType" minOccurs="0"/>

 <xs:element name="MbmsSaChange" type="mcdataloc:tMbmsSaChangeType" minOccurs="0"/>

 <xs:element name="MbsfnAreaChange" type="mcdataloc:tMbsfnAreaChangeType" minOccurs="0"/>

 <xs:element name="PeriodicReport" type="mcdataloc:tIntegerAttributeType" minOccurs="0"/>

 <xs:element name="TravelledDistance" type="mcdataloc:tIntegerAttributeType" minOccurs="0"/>

 <xs:element name="McdataSignallingEvent" type="mcdataloc:tSignallingEventType" minOccurs="0"/>

 <xs:element name="GeographicalAreaChange" type="mcdataloc:tGeographicalAreaChange"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tCellChange">

 <xs:sequence>

 <xs:element name="AnyCellChange" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="EnterSpecificCell" type="mcdataloc:tSpecificCellType" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="ExitSpecificCell" type="mcdataloc:tSpecificCellType" minOccurs="0" maxOccurs="unbounded"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tEmptyType"/>

 <xs:simpleType name="tEcgi">

 <xs:restriction base="xs:string">

 <xs:pattern value="\d{3}\d{3}[0-1]{28}"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="tSpecificCellType">

 <xs:simpleContent>

 <xs:extension base="mcdataloc:tEcgi">

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:simpleContent>

 </xs:complexType>

 <xs:complexType name="tEmptyTypeAttribute">

 <xs:complexContent>

 <xs:extension base="mcdataloc:tEmptyType">

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:complexContent>

 </xs:complexType>

 <xs:complexType name="tTrackingAreaChangeType">

 <xs:sequence>

 <xs:element name="AnyTrackingAreaChange" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="EnterSpecificTrackingArea" type="mcdataloc:tTrackingAreaIdentity" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="ExitSpecificTrackingArea" type="mcdataloc:tTrackingAreaIdentity" minOccurs="0" maxOccurs="unbounded"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:simpleType name="tTrackingAreaIdentityFormat">

 <xs:restriction base="xs:string">

 <xs:pattern value="\d{3}\d{3}[0-1]{16}"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="tTrackingAreaIdentity">

 <xs:simpleContent>

 <xs:extension base="mcdataloc:tTrackingAreaIdentityFormat">

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:simpleContent>

 </xs:complexType>

 <xs:complexType name="tPlmnChangeType">

 <xs:sequence>

 <xs:element name="AnyPlmnChange" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="EnterSpecificPlmn" type="mcdataloc:tPlmnIdentity" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="ExitSpecificPlmn" type="mcdataloc:tPlmnIdentity" minOccurs="0" maxOccurs="unbounded"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:simpleType name="tPlmnIdentityFormat">

 <xs:restriction base="xs:string">

 <xs:pattern value="\d{3}\d{3}"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="tPlmnIdentity">

 <xs:simpleContent>

 <xs:extension base="mcdataloc:tPlmnIdentityFormat">

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:simpleContent>

 </xs:complexType>

 <xs:complexType name="tMbmsSaChangeType">

 <xs:sequence>

 <xs:element name="AnyMbmsSaChange" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="EnterSpecificMbmsSa" type="mcdataloc:tMbmsSaIdentity" minOccurs="0"/>

 <xs:element name="ExitSpecificMbmsSa" type="mcdataloc:tMbmsSaIdentity" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:simpleType name="tMbmsSaIdentityFormat">

 <xs:restriction base="xs:integer">

 <xs:minInclusive value="0"/>

 <xs:maxInclusive value="65535"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="tMbmsSaIdentity">

 <xs:simpleContent>

 <xs:extension base="mcdataloc:tMbmsSaIdentityFormat">

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:simpleContent>

 </xs:complexType>

 <xs:complexType name="tMbsfnAreaChangeType">

 <xs:sequence>

 <xs:element name="EnterSpecificMbsfnArea" type="mcdataloc:tMbsfnAreaIdentity" minOccurs="0"/>

 <xs:element name="ExitSpecificMbsfnArea" type="mcdataloc:tMbsfnAreaIdentity" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:simpleType name="tMbsfnAreaIdentityFormat">

 <xs:restriction base="xs:integer">

 <xs:minInclusive value="0"/>

 <xs:maxInclusive value="255"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="tMbsfnAreaIdentity">

 <xs:simpleContent>

 <xs:extension base="mcdataloc:tMbsfnAreaIdentityFormat">

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:simpleContent>

 </xs:complexType>

 <xs:complexType name="tIntegerAttributeType">

 <xs:simpleContent>

 <xs:extension base="xs:integer">

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 </xs:extension>

 </xs:simpleContent>

 </xs:complexType>

 <xs:complexType name="tTravelledDistanceType">

 <xs:sequence>

 <xs:element name="TravelledDistance" type="xs:positiveInteger"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tSignallingEventType">

 <xs:sequence>

 <xs:element name="InitialLogOn" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="GroupCallNonEmergency" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="PrivateCallNonEmergency" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="LocationConfigurationReceived" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tEmergencyEventType">

 <xs:sequence>

 <xs:element name="GroupCallEmergency" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="GroupCallImminentPeril" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="PrivateCallEmergency" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="InitiateEmergencyAlert" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tRequestedLocationType">

 <xs:sequence>

 <xs:element name="ServingEcgi" type="mcdataloc:tEmptyType" minOccurs="0"/>

 <xs:element name="NeighbouringEcgi" type="mcdataloc:tEmptyType" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="MbmsSaId" type="mcdataloc:tEmptyType" minOccurs="0"/>

 <xs:element name="MbsfnArea" type="mcdataloc:tEmptyType" minOccurs="0"/>

 <xs:element name="GeographicalCoordinate" type="mcdataloc:tEmptyType" minOccurs="0"/>

 <xs:element name="minimumIntervalLength" type="xs:positiveInteger"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tCurrentLocationType">

 <xs:sequence>

 <xs:element name="CurrentServingEcgi" type="mcdataloc:tLocationType" minOccurs="0"/>

 <xs:element name="NeighbouringEcgi" type="mcdataloc:tLocationType" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="MbmsSaId" type="mcdataloc:tLocationType" minOccurs="0"/>

 <xs:element name="MbsfnArea" type="mcdataloc:tLocationType" minOccurs="0"/>

 <xs:element name="CurrentCoordinate" type="mcdataloc:tPointCoordinate" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <!-- anyExt elements for "tCurrentLocationType" -->

 <xs:element name="locTimestamp" type="xs:dateTime"/>

 <xs:simpleType name="protectionType">

 <xs:restriction base="xs:string">

 <xs:enumeration value="Normal"/>

 <xs:enumeration value="Encrypted"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="tLocationType">

 <xs:choice minOccurs="1" maxOccurs="1">

 <xs:element name="Ecgi" type="mcdataloc:tEcgi" minOccurs="0"/>

 <xs:element name="SaId" type="mcdataloc:tMbmsSaIdentity" minOccurs="0"/>

 <xs:element name="MbsfnAreaId" type="mcdataloc:tMbsfnAreaIdentity" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:choice>

 <xs:attribute name="type" type="mcdataloc:protectionType"/>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tGeographicalAreaChange">

 <xs:sequence>

 <xs:element name="AnyAreaChange" type="mcdataloc:tEmptyTypeAttribute" minOccurs="0"/>

 <xs:element name="EnterSpecificAreaType" type="mcdataloc:tSpecificAreaType" minOccurs="0"/>

 <xs:element name="ExitSpecificAreaType" type="mcdataloc:tSpecificAreaType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tSpecificAreaType">

 <xs:sequence>

 <xs:element name="GeographicalArea" type="mcdataloc:tGeographicalAreaDef"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:attribute name="TriggerId" type="xs:string" use="required"/>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tPointCoordinate">

 <xs:sequence>

 <xs:element name="longitude" type="mcdataloc:tCoordinateType"/>

 <xs:element name="latitude" type="mcdataloc:tCoordinateType"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <!-- anyExt elements for "tPointCoordinate" -->

 <xs:element name="altitude" type="mcdataloc:tCoordinateType2Bytes"/>

 <xs:complexType name="tCoordinateType">

 <xs:choice minOccurs="1" maxOccurs="1">

 <xs:element name="threebytes" type="mcdataloc:tThreeByteType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:choice>

 <xs:attribute name="type" type="mcdataloc:protectionType"/>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tCoordinateType2Bytes">

 <xs:choice minOccurs="1" maxOccurs="1">

 <xs:element name="twobytes" type="mcdataloc:tTwoByteType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:choice>

 <xs:attribute name="type" type="mcdataloc:protectionType"/>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:simpleType name="tThreeByteType">

 <xs:restriction base="xs:integer">

 <xs:minInclusive value="0"/>

 <xs:maxInclusive value="16777215"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:simpleType name="tTwoByteType">

 <xs:restriction base="xs:integer">

 <xs:minInclusive value="-32768"/>

 <xs:maxInclusive value="32768"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:complexType name="tGeographicalAreaDef">

 <xs:sequence>

 <xs:element name="PolygonArea" type="mcdataloc:tPolygonAreaType" minOccurs="0"/>

 <xs:element name="EllipsoidArcArea" type="mcdataloc:tEllipsoidArcType" minOccurs="0"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tPolygonAreaType">

 <xs:sequence>

 <xs:element name="Corner" type="mcdataloc:tPointCoordinate" minOccurs="3" maxOccurs="15"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="tEllipsoidArcType">

 <xs:sequence>

 <xs:element name="Center" type="mcdataloc:tPointCoordinate"/>

 <xs:element name="Radius" type="xs:nonNegativeInteger"/>

 <xs:element name="OffsetAngle" type="xs:unsignedByte"/>

 <xs:element name="IncludedAngle" type="xs:unsignedByte"/>

 <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 <xs:element name="anyExt" type="mcdataloc:anyExtType" minOccurs="0"/>

 </xs:sequence>

 <xs:anyAttribute namespace="##any" processContents="lax"/>

 </xs:complexType>

 <xs:complexType name="anyExtType">

 <xs:sequence>

 <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

 </xs:sequence>

 </xs:complexType>

</xs:schema>

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

## D.4.3 Semantic

The <location-info> element is the root element of the XML document. The <location-info> element contains the <Configuration>, <Request> and <Report> subelements, of which only one can be present.

<Configuration> element has a <ConfigScope> attribute that can assume the values "Full" and "Update". The value "Full" means that the Configuration> element contains the full location configuration which replaces any previous location configuration. The value "Update" means that the location configuration is in addition to any previous location configuration. To remove configuration elements a "Full" configuration is needed. The <Configuration> element contains the following child elements:

1) <NonEmergencyLocationInformation>, an optional element that specifies the location information requested in non-emergency situations. The <NonEmergencyLocationInformation> has the subelements:

a) <ServingEcgi>, an optional element specifying that the serving E-UTRAN Cell Global Identity (ECGI) needs to be reported;

b) <NeighbouringEcgi>, an optional element that can occur multiple times, specifying that neighbouring ECGIs need to be reported;

c) <MbmsSaId>, an optional element specifying that the serving MBMS Service Area Id needs to be reported;

d) <MbsfnArea>, an optional element specifying that the MBSFN area Id needs to be reported;

e) <GeographicalCoordinate>, an optional element specifying that the geographical coordinate specified in subclause 6.1 in 3GPP TS 23.032 [47] needs to be reported; and

f) <minimumIntervalLength>, a mandatory element specifying the minimum time the MCData client needs to wait between sending location reports. The value is given in seconds;

2) <EmergencyLocationInformation>, an optional element that specifies the location information requested in emergency situations. The <EmergencyLocationInformation> has the subelements:

a) <ServingEcgi>, an optional element specifying that the serving ECGI needs to be reported;

b) <NeighbouringEcgi>, an optional element that can occur multiple times, specifying that neighbouring ECGIs need to be reported;

c) <MbmsSaId>, an optional element specifying that the serving MBMS Service Area Id needs to be reported;

d) <MbsfnArea>, an optional element specifying that the MBSFN area Id needs to be reported;

e) <GeographicalCoordinate>, an optional element specifying that the geographical coordinate specified in subclause 6.1 in 3GPP TS 23.032 [47] needs to be reported; and

f) <minimumIntervalLength>, a mandatory element specifying the minimum time the MCData client needs to wait between sending location reports. The value is given in seconds; and

3) <TriggeringCriteria>, a mandatory element specifying the triggers for the MCData client to perform reporting in non emergency status. The <TriggeringCriteria> element contains the following sub-elements:

a) <CellChange>, an optional element specifying what cell changes trigger location reporting. Consists of the following sub-elements:

I) <AnyCellChange>, an optional element. The presence of this element specifies that any cell change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <EnterSpecificCell>, an optional element specifying an ECGI which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

III) <ExitSpecificCell>, an optional element specifying an ECGI which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

b) <TrackingAreaChange>, an optional element specifying what tracking area changes trigger location reporting. Consists of the following sub-elements:

I) <AnyTrackingAreaChange>, an optional element. The presence of this element specifies that any tracking area change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <EnterSpecificTrackingArea>, an optional element specifying a Tracking Area Id which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

III) <ExitSpecificTrackingArea>, an optional element specifying a Tracking Area Id which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

c) <PlmnChange>, an optional element specifying what PLMN changes trigger location reporting. Consists of the following sub-elements:

I) <AnyPlmnChange>, an optional element. The presence of this element specifies that any PLMN change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <EnterSpecificPlmn>, an optional element specifying a PLMN Id which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

III) <ExitSpecificPlmn>, an optional element specifying a PLMN Id which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

d) <MbmsSaChange>, an optional element specifying what MBMS changes trigger location reporting. Consists of the following sub-elements:

I) <AnyMbmsSaChange>, an optional element. The presence of this element specifies that any MBMS SA change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <EnterSpecificMbmsSa>, an optional element specifying an MBMS Service Area Id which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

III) <ExitSpecificMbmsSa>, an optional element specifying an MBMS Service Area Id which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

e) <MbsfnAreaChange>, an optional element specifying what MBSFN changes trigger location reporting. Consists of the following sub-elements:

I) <AnyMbsfnAreaChange>, an optional element. The presence of this element specifies that any MBSFN area change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <EnterSpecificMbsfnArea>, an optional element specifying an MBSFN area which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

III) <ExitSpecificMbsfnArea>, an optional element specifying an MBSFN area which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

f) <PeriodicReport>, an optional element specifying that periodic location reports shall be sent. The value in seconds specifies the reporting interval. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

g) <TravelledDistance>, an optional element specifying that the travelled distance shall trigger a report. The value in metres specified the travelled distance. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

h) <McdataSignallingEvent>, an optional element specifying what signalling events triggers a location report. The <McdataSignallingEvent> element has the following sub-elements:

I) <InitialLogOn>, an optional element specifying that an initial log on triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <GroupCallNonEmergency>, an optional element specifying that a non-emergency group call triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

III) <PrivateCallNonEmergency>, an optional element specifying that a non-emergency private call triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

IV) <LocationConfigurationReceived>, an optional element specifying that a received location configuration triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

i) <GeographicalAreaChange>, an optional element specifying what geographical are changes trigger location reporting. Consists of the following sub-elements:

I) <AnyAreaChange>, an optional element. The presence of this element specifies that any geographical area change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <EnterSpecificArea>, an optional element specifying a geographical area which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string. The <EnterSpecificArea> element has the following sub-elements:

A) <GeographicalArea>, an optional element containing a <TriggerId> attribute and the following two subelements:

x1) <PolygonArea>, an optional element specifying the area as a polygon specified in subclause 5.2 in 3GPP TS 23.032 [47]; and

x2) <EllipsoidArcArea>, an optional element specifying the area as an Ellipsoid Arc specified in subclause 5.7 in 3GPP TS 23.032 [47]; and

III) <ExitSpecificAreaType>, an optional element specifying a geographical area which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string.

4) the <anyExt> shall be included with the following element not declared in the XML schema:

a) <EmergencyTriggeringCriteria>, a mandatory element specifying the triggers for the MCData client to perform reporting in emergency status. The <TriggeringCriteria> element contains the following sub-elements:

I) <CellChange>, an optional element specifying what cell changes trigger location reporting. Consists of the following sub-elements:

A) <AnyCellChange>, an optional element. The presence of this element specifies that any cell change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

B) <EnterSpecificCell>, an optional element specifying an ECGI which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

C) <ExitSpecificCell>, an optional element specifying an ECGI which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

II) <TrackingAreaChange>, an optional element specifying what tracking area changes trigger location reporting. Consists of the following sub-elements:

A) <AnyTrackingAreaChange>, an optional element. The presence of this element specifies that any tracking area change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

B) <EnterSpecificTrackingArea>, an optional element specifying a Tracking Area Id which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

C) <ExitSpecificTrackingArea>, an optional element specifying a Tracking Area Id which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

III) <PlmnChange>, an optional element specifying what PLMN changes trigger location reporting. Consists of the following sub-elements:

A) <AnyPlmnChange>, an optional element. The presence of this element specifies that any PLMN change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

B) <EnterSpecificPlmn>, an optional element specifying a PLMN Id which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

C) <ExitSpecificPlmn>, an optional element specifying a PLMN Id which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

IV) <MbmsSaChange>, an optional element specifying what MBMS changes trigger location reporting. Consists of the following sub-elements:

A) <AnyMbmsSaChange>, an optional element. The presence of this element specifies that any MBMS SA change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

B) <EnterSpecificMbmsSa>, an optional element specifying an MBMS Service Area Id which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

C <ExitSpecificMbmsSa>, an optional element specifying an MBMS Service Area Id which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

V) <MbsfnAreaChange>, an optional element specifying what MBSFN changes trigger location reporting. Consists of the following sub-elements:

A) <AnyMbsfnAreaChange>, an optional element. The presence of this element specifies that any MBSFN area change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

B) <EnterSpecificMbsfnArea>, an optional element specifying an MBSFN area which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

C) <ExitSpecificMbsfnArea>, an optional element specifying an MBSFN area which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

VI) <PeriodicReport>, an optional element specifying that periodic location reports shall be sent. The value in seconds specifies the reporting interval. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

VII) <TravelledDistance>, an optional element specifying that the travelled distance shall trigger a report. The value in metres specified the travelled distance. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

VIII) <McdataSignallingEvent>, an optional element specifying what signalling events triggers a location report. The <McdataSignallingEvent> element has the following sub-elements:

A) <InitialLogOn>, an optional element specifying that an initial log on triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

B) <GroupCallNonEmergency>, an optional element specifying that a non-emergency group call triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

C) <PrivateCallNonEmergency>, an optional element specifying that a non-emergency private call triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

D) <LocationConfigurationReceived>, an optional element specifying that a received location configuration triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string; and

IX) <GeographicalAreaChange>, an optional element specifying what geographical are changes trigger location reporting. Consists of the following sub-elements:

A) <AnyAreaChange>, an optional element. The presence of this element specifies that any geographical area change is a trigger. Contains a mandatory <TriggerId> attribute that shall be set to a unique string;

B) <EnterSpecificArea>, an optional element specifying a geographical area which when entered triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string. The <EnterSpecificArea> element has the following sub-elements:

x1) <GeographicalArea>, an optional element containing a <TriggerId> attribute and the following two subelements:

 i1) <PolygonArea>, an optional element specifying the area as a polygon specified in subclause 5.2 in 3GPP TS 23.032 [47]; and

 i2) <EllipsoidArcArea>, an optional element specifying the area as an Ellipsoid Arc specified in subclause 5.7 in 3GPP TS 23.032 [47]; and

C) <ExitSpecificAreaType>, an optional element specifying a geographical area which when exited triggers a location report. Contains a mandatory <TriggerId> attribute that shall be set to a unique string.

<Request> is an element with a <RequestId> attribute. The <Request> element is used to request a location report. The value of the <RequestId> attribute is returned in the corresponding <ReportId> attribute in order to correlate the request and the report.

<Report> is an element used to include the location report. It contains a <ReportId> attribute and a <ReportType> attribute. The <ReportId> attribute is used to return the value in the <RequestId> attribute in the <Request> element. The <ReportType> attribute has two values "Emergency" and "NonEmergency" used to inform whether the client is sending the report in an emergency situation or not. The <Report> element contains the following sub-elements:

1) <TriggerId>, an optional element which can occur multiple times that contain the value of the <TriggerId> attribute associated with a trigger that has fired; and

2) <CurrentLocation>, a mandatory element that contains the location information. The <CurrentLocation> element contains the following sub-elements:

a) <CurrentServingEcgi>, an optional element containing the ECGI of the serving cell;

b) <NeighbouringEcgi>, an optional element that can occur multiple times. It contains the ECGI of any neighbouring cell the MCData client can detect;

c) <MbmsSaId>, an optional element containing the MBMS Service Area Id the MCData client is using;

d) <MbsfnArea>, an optional element containing the MBSFN area the MCData is located in; and

e) <CurrentCoordinate>, an optional element containing:

i) the longitude and latitude coded as in subclause 6.1 in 3GPP TS 23.032 [47]; and

ii) an optional <anyExt> element containing an <altitude> element coded as in subclause 6.3 in 3GPP TS 23.032 [47]; and

f) <anyExt>, an optional element containing:

i) an optional <locTimestamp> element containing the date and time the location measurement was made.The contents of the subelements in the <CurrentLocation> subelement of the <Report> element can be encrypted. The following rules are applied when any of these elements are included:

1) if confidentiality protection is not required, then:

a) the "type" attributes associated with the <CurrentServingEcgi>, <NeighbouringEcgi>, <MbmsSaId>, and <MbsfnArea> elements of the <Report> element have the value "Normal" and

ii) the <Ecgi> subelement of the <CurrentServingEcgi> element contains the unencrypted value of the ECGI of the serving cell;

iii) the <Ecgi> subelement of the <NeighbouringEcgi> element contains the unencrypted value of the ECGI of any neighbouring cell;

iv) the <SaId> subelement of the <MbmsSaId> element contains the unencrypted value of the MBMS Service Area Id the MCData client is using; and

v) the <MbsfnAreaId> subelement of the <MbsfnArea>, element contains the unencrypted value of the MBSFN area the MCData is located in;

b) the "type" attributes associated with the <longitude>, <latitude> and <altitude> subelements of the <CurrentCoordinate> element have the value "Normal" and the <threebytes> subelements of <longitude> and <latitude> subelements and the <twobytes> subelement of the <altitude> subelement contain the unencrypted value of longitude, latitude and altitude respectively.

2) if confidentiality protection is required, then:

a) the "type" attributes associated with the <CurrentServingEcgi>, <NeighbouringEcgi>, <MbmsSaId>, and <MbsfnArea> elements have the value "Encrypted";

b) the "type" attributes associated with the <longitude>, <latitude> and <altitude> subelements of the <CurrentCoordinate> element have the value "Encrypted";

c) for each of the elements described in 2a) and subelements described in 2b) above, the <xenc:EncryptedData> element from the "[http://www.w3.org/2001/04/xmlenc#](http://www.w3.org/2001/04/xmlenc)" namespace is included and:

i) can have a "Type" attribute can be included with a value of "<http://www.w3.org/2001/04/xmlenc#Content>";

ii) can include an <EncryptionMethod> element with the "Algorithm" attribute set to value of "http://www.w3.org/2009/xmlenc11#aes128-gcm";

iii) can include a <KeyInfo> element with a <KeyName> element containing the base 64 encoded XPK-ID; and

iv) includes a <CipherData> element with a <CipherValue> element containing the encrypted data.

NOTE: When the optional attributes and elements are not included within the <xenc:EncryptedData> element, the information they contain is known to sender and the receiver by other means.

The recipient of the XML ignores any unknown element and any unknown attribute.

**\* \* \* \* \* END CHANGES \* \* \* \* \***