ATIS Standard on -

Wireless Emergency Alert (WEA) 3.0 Mobile Device Behavior (MDB) Specification

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Wireless Emergency Alert (WEA) 3.0 Mobile Device Behavior (MDB) Specification

Alliance for Telecommunications Industry Solutions

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Abstract

This specification defines a common set of requirements for GSM, UMTS, LTE, and 5G based mobile devices. Implementation of the requirements contained within this specification is mobile device manufacturer dependent.

Foreword

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Wireless Technologies and Systems Committee (WTSC) develops and recommends standards and technical reports related to wireless and/or mobile services and systems, including service descriptions and wireless technologies. WTSC develops and recommends positions on related subjects under consideration in other North American, regional, and international standards bodies.

The mandatory requirements are designated by the word shall and recommendations by the word should. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word may denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

This ATIS Standard is a revision of ATIS-0700036.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, WTSC, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time of consensus on this document, WTSC, which was responsible for its development, had the following leadership:

> M. Younge, WTSC Chair (T-Mobile USA)
> D. Zelmer, WTSC Vice Chair (AT&T)
> Terri Brooks, WTSC SN Chair (T-Mobile USA)
> Peter Musgrove, WTSC SN Vice Chair and Technical Editor (AT&T)

The Systems & Networks (SN) subcommittee was responsible for the development of this document.

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Preface

The authority-to-individual emergency alerting capability to mobile devices was originally called Commercial Mobile Alert System (CMAS) in the first three Reports and Orders from the Federal Communications Commission (FCC). This standard was originally developed based upon the CMAS terminology and CMAS was operational in April 2012. However, in February 2013, the FCC renamed CMAS to Wireless Emergency Alerts (WEA) with associated updates to the appropriate sections of Part 11 of the 47 CFR. Subsequently, the FCC has issued additional enhancements and rules for this government-to-individual emergency alerting capability to mobile devices and these are identified as modifications to WEA.

Consequently, this specification may use both the term CMAS and the term WEA. These terms should be considered as equivalent terms, with WEA being the preferred term.

This ATIS specification is the WEA 3.0 standard for the WEA 3.0 mobile device behavior and is based upon the WEA enhancements identified in the January 30, 2018, FCC Second Report & Order and Second Order on Reconsideration, FCC 18-4 [Ref 14]. The use of the term WEA in this specification refers to WEA 3.0, unless otherwise specifically indicated. This specification is targeted at participating Commercial Mobile Service Providers (CMSPs) per the FCC definition described in ATIS-0700035, *Wireless Emergency Alert (3.0) Service Description* [Ref 100]. All references to CMSPs in this specification refer to participating CMSPs.

The regulatory background is described in detail in the Service Description in ATIS-0700035 [Ref 100].

1 Scope, Purpose, & Application

1.1 Scope

One of the objectives of this WEA specification is to define a set of requirements for the behavior of the mobile devices whenever a WEA alert message is received. This specification defines a set of requirements for Global System for Mobile Communications (GSM), Universal Mobile Telecommunication System (UMTS), Long-Term Evolution (LTE), and 5G based mobile devices. Implementation of the requirements contained within this specification is mobile device manufacturer dependent.

Even though the scope of WEA includes paging systems, the behavior of paging devices for WEA alert messages is not contained within this specification.

More information about previous versions of WEA can be found in the WEA 3.0 Service Description [Ref 100].

1.2 Purpose

The purpose of this specification is to define the WEA 3.0 set of requirements for GSM, UMTS, LTE, and 5G based mobile devices behavior. This WEA 3.0 mobile device behavior specification is based upon the WEA enhancements identified in the January 2018 FCC Second Report & Order and Second Order on Reconsideration, FCC 18-4 [Ref 14].

Any assumptions, requirements, and principles from ATIS-0700036, *Enhanced Mobile Device Behavior Specification* which are applicable to WEA 3.0 are included in this ATIS specification.

A common set of WEA requirements for the mobile device behavior will allow for a consistent user experience regardless of the associated wireless technology of the mobile device. Additionally, this common set of WEA requirements for the mobile device behavior will allow the various local, state, and Federal level government agencies to develop user WEA educational information that is independent of the wireless technology.

1.3 Application

This specification focuses on the mobile device behavior associated with the receipt and processing of the WEA alert messages on WEA compliant mobile devices.

FCC Report and Order and Further Notice of Proposed Rulemaking (FCC-21-77) [Ref 16], re-designates WEA Presidential Alerts to include alerts from both the President and from the FEMA Administrator, and renames the Presidential Alert to National Alert.

2   References

The following standards contain provisions which, through reference in this text, constitute provisions of this ATIS Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this ATIS Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

2.1 Normative References

[Ref 1] FCC 08-99, *Federal Communications Commission First Report and Order In the Matter of The Commercial Mobile Alert System*; April 9, 2008.[1]

[Ref 2] Void.

[Ref 3] INCITS 31-2009, *Codes for the Identification of Counties and Equivalent Areas of the United States, Puerto Rico, and the Insular Areas*; International Committee for Information Technology Standards (INCITS). [2]

[Ref 4] WARN Act, *Security and Accountability for Every Port Act of 2006 (SAFE Port Act)*, Pub.L. 109-347, *Title VI-Commercial Mobile Service Alerts (WARN Act)*.[3]

[Ref 5] *Federal Communications Commission (FCC) Commercial Mobile Alert System (CMAS) Notice of Proposed Rulemaking (NPRM)*, Docket 07-287; December 14, 2007.[1]

[Ref 6] Title 47 United States Code (U.S.C.) Section 225, *Telecommunications services for hearing-impaired and speech-impaired individuals*.[3]

[Ref 7] FCC 08-164, *Federal Communications Commission Second Report and Order and Further Notice of Proposed Rulemaking In the Matter of The Commercial Mobile Alert System*; July 8, 2008.[1]

[Ref 8] 3GPP TS 23.041, *3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Technical realization of Cell Broadcast Service (CBS)*.[4]

[Ref 9] FCC 16-127, *Federal Communications Commission Report and Order and Further Notice of Proposed Rulemaking in the Matter of Wireless Emergency Alerts Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*; September 29, 2016.[1]

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[1] This document is available from the Federal Communications Commission. <http://www.fcc.gov/>

[2] This document is available from the International Committee for Information Technology Standards (INCITS) at < https://standards.incits.org/apps/group_public/project/details.php?project_id=204 >.

[3] This document is available from the U.S. Government Printing Office. < http://www.gpo.gov/ >.

[4] This document is available from the 3rd Generation Partnership Project (3GPP) < http://www.3gpp.org/ >.

[Ref 10] IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*.[5]

[Ref 11] ATIS-0700010, *Wireless Emergency Alert (WEA) 3.0 via EPS Public Warning System Specification*.[6]

[Ref 12] ATIS-0700025, *Wireless Emergency Alert (WEA) 3.0 International Roaming Specification*.[6]

[Ref 13] Void.

[Ref 14] FCC 18-4, *Federal Communications Commission Second Report and Order and Second Order on Reconsideration In the Matter of Wireless Emergency Alerts Amendments to Part 11 of the Commission's Rules Regarding The Emergency Alert System; January 30, 2018.*[1]

[Ref 15] ATIS-0700041, *WEA 3.0: Device-Based Geo-Fencing*.[6]

[Ref 16] FCC-21-77, Report and Order and Further Notice of Proposed Rulemaking Amendment of Part 11 of the Commission's Rules Regarding the Emergency Alert System and Wireless Emergency Alerts

2.2 *Informative References*

 [Ref 100] ATIS-0700035, *Wireless Emergency Alert (WEA) 3.0 Service Description*.[6]

3 Definitions, Acronyms, & Abbreviations

For a list of common communications terms and definitions, please visit the *ATIS Telecom Glossary*, which is located at < https://glossary.atis.org/ >.

3.1 *Definitions*

Alert Message: An Alert Message is a message that is intended to provide the recipient information regarding an emergency, and that meets the requirements for transmission by a Participating Commercial Mobile Service Provider as defined in the *FCC First Report and Order for the Commercial Mobile Alert System* [Ref 1].

Commercial Mobile Alert System: The CMAS refers to the voluntary emergency alerting system defined in the *FCC First Report and Order* [Ref 1], whereby CMSPs (or CMS Providers) may elect to transmit Alert Messages to the public.

Commercial Mobile Service Provider: A CMSP or CMS Provider is an FCC licensee providing commercial mobile service as defined in section 332 (d)(1) of the Communications Act of 1934 [47 U.S.C. 332(d)(1)]. Section 332(d)(1) defines the term commercial mobile service as any mobile service (as defined in 47 U.S.C. 153) that is provided for profit and makes interconnected service available: (a) to the public; or (b) to such classes of eligible users as to be effectively available to a substantial portion of the public, as specified by regulation by the Federal Communications Commission.

County and County Equivalent: Counties are considered to be the "first-order subdivisions" of each State and statistically equivalent entity, regardless of their local designations (county, parish, borough, etc.). Thus, the following entities are considered to be equivalent to counties for legal and/or statistical purposes: the parishes of Louisiana; the boroughs and census areas of Alaska; the District of Columbia; the independent cities of Maryland, Missouri, Nevada, and Virginia; that part of Yellowstone National Park in Montana; and various entities in the possessions and associated areas. Per the INCITS 31-2009 standard [Ref 3], the Federal Information Processing Series (FIPS) codes for county and county equivalents are maintained by the American National Standards Institute (ANSI) and are publicly available at < https://www.census.gov/geo/reference/codes/cou.html >. As of 30 June 2017, there were 3,235 identified county and county equivalents.

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[5] This document is available from the Internet Engineering Task Force (IETF). < http://www.ietf.org >.

[6] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS). < http://www.atis.org >.

Device-based Geo-Fencing (DBGF): The process by which a WEA capable device compares Warning Area Geometries received from a network cell broadcast message with the device's current location to determine whether the device should present the associated alert message.

Participating Commercial Mobile Service Provider: A Participating Commercial Mobile Service Provider (or a Participating CMS Provider) is a Commercial Mobile Service Provider that has voluntarily elected to transmit Alert Messages.

Public Safety Message: An essential public safety advisory, as defined in the FCC Report and Order on WEA enhancements, FCC 16-127 [Ref 9], that prescribes one or more actions likely to save lives and/or safeguard property.

State/Local WEA Test Message. End-to-end system test message, as defined in the FCC Report and Order on WEA enhancements, FCC 16-127 [Ref 9], which is initiated by state and local emergency managers and terminating with members of the public who opt in to receiving them.

Warning Area Coordinates (WAC) Information Element (IE): The parameter that contains the description of polygons and circles (i.e., the description of the Warning Area Geometries) that specifies the alert's geographic boundary, as provided by the alert originator, along with associated handling information (e.g., timer).

Warning Area Geometries: The set of all geometric shapes (e.g., polygons, circles) sent by the Alert Originator included in the Warning Area Coordinates.

Wireless Emergency Alert (WEA) 3.0: A continued provision of effective WEA alert messages while leveraging advancements in technology to improve WEA's capabilities as defined in the Jan. 30, 2018 FCC Second Report and Order and Second Order on Reconsideration, FCC 18-4 [Ref 14].

Wireless Handset Action Message (WHAM): The WHAM message is a Cell Broadcast Service (CBS) message broadcast by the network to direct devices to perform a geo-fencing check on selected active alerts.

> NOTE: The equivalent of WHAM used in this document is the geo-fencing trigger message in 3GPP TS 23.041 [Ref 8].

3.2   *Acronyms & Abbreviations*

AMBER	America's Missing Broadcast Emergency Response
ANSI	American National Standards Institute
ATIS	Alliance for Telecommunications Industry Solutions
CBS	Cell Broadcast Service
C.F.R.	Code of Federal Regulations
CMAS	Commercial Mobile Alert System
CMSAAC	Commercial Mobile Service Alert Advisory Committee
CMSP	Commercial Mobile Service Provider
DBGF	Device-Based Geo-Fencing
FCC	Federal Communications Commission
FIPS	Federal Information Processing Series
GSM	Global System for Mobile Communications
IE	Information Element
INCITS	International Committee for Information Technology Standards
LTE	Long-Term Evolution
NPRM	Notice of Proposed Rulemaking
RMT	Required Monthly Test
UMTS	Universal Mobile Telecommunication System
URL	Uniform Resource Locator
WAC	Warning Area Coordinates

WARN	Warning, Alert, & Response Network
WEA	Wireless Emergency Alert
WHAM	Wireless Handset Action Message

4   Assumptions

The following assumptions apply to the support of WEA services on mobile devices:

1. The CMSPs are not required to support WEA on non-WEA compliant devices. Thus, the behavior of such mobile devices with respect to WEA alerts is outside the scope of this specification.

2. This specification only covers WEA functionality of the mobile device. All other mobile device functions such as registration, authentication, etc., are outside the scope of this specification.

3. Since the over-the-air WEA delivery mechanism is through a best-effort message broadcasting system, the delivery of any WEA message at a certain time and place is not guaranteed.

4. The English WEA alert message and the WEA alert messages of any additional languages will be broadcast as separate messages.

5. Devices which are not WEA 3.0 capable ignore the broadcast Warning Area Coordinates and the Wireless Handset Action Message (WHAM).

5   Mandated Mobile Device Requirements

The following are the requirements on the mobile device from the *FCC First Report and Order,* FCC 08-99 [Ref 1]:

[WEA-MDB-RQMT-0010] WEA mobile device functionality is dependent on the capabilities of a Participating CMS Provider's delivery technologies. Mobile devices are required to perform the following functions:

a. *Authentication of interactions with CMSP infrastructure*. Specifications for this requirement are dependent on the air interface technology and thus are outside the scope of this specification.

b. *Monitoring for Alert Messages*. Specifications for this requirement are dependent on the air interface technology and thus are outside the scope of this specification.

c. *Maintaining user alert opt-in/opt-out options*, if any.

d. *Maintaining user alert language preferences*[7], if any.

e. *Extraction of alert content in English and in the user's preferred language*, if applicable.

f. *Presentation of alert content, consistent with user opt-in/opt-out options*. National Alerts must always be presented.

g. *Detection and suppression of presentation of duplicate alerts.*

[WEA-MDB-RQMT-0020] WEA-capable mobile devices shall not enable an Alert Message to preempt an active voice or data session.[8]

The following items summarize the WEA enhancements for mobile devices from the September 2016 FCC Report & Order on WEA enhancements, FCC 16-127 [Ref 9]. For the full description of the WEA enhancements for mobile devices, refer to discussion paragraphs in the FCC Report & Order FCC 16-127 and the 47 CFR sections as specified in *Appendix A Final Rules* of the FCC Report & Order FCC 16-127 [Ref 9].

NOTE: In the following items, the term "present" as in "present WEA alert message" means that the WEA alert message is displayed to the user based upon the user's WEA opt-in/opt-out settings, the user's WEA language settings (English is mandatory), the user's common vibration cadence settings, and the user's common audio attention signal settings.

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[7] The FCC First Report & Order, FCC 08-99 [Ref 1] only mandates the support of WEA alerts in English.

[8] Further refinement was offered by later Report & Orders as shown below.

[WEA-MDB-RQMT-0030] The WEA-capable mobile devices are required to present WEA alert messages as soon as they are received, even during an active voice and data session, without preemption or disconnection of active voice or data sessions.

[WEA-MDB-RQMT-0040] If a WEA-capable mobile device receives a WEA alert message during an active voice or data session, the user may be given the option to control how the Alert Message is presented on the mobile device with respect to the use of the common vibration cadence and audio attention signal.

[WEA-MDB-RQMT-0050] The WEA-capable mobile devices shall provide the capability for the user to opt-in to receive State/Local WEA Tests.

[WEA-MDB-RQMT-0060] The WEA-capable mobile devices shall provide the capability for the user to opt-out of receiving Public Safety Messages.

[WEA-MDB-RQMT-0070] The WEA-capable mobile devices shall support WEA alert messages that include embedded references (i.e., URL, telephone number).

The following items summarize the WEA enhancements from the Jan. 31, 2018 Wireless Emergency Alerts Second Report and Order and Secord Order on Reconsideration, FCC 18-4 [Ref 14]. For the full description of the WEA enhancements, refer to discussion paragraphs in the FCC Report & Order FCC 16-127 and the 47 CFR sections as specified in *Appendix A Final Rules* of the FCC Second Report & Order and Second Order on Reconsideration FCC 18-4 [Ref 14].

[WEA-MDB-RQMT-0080] Mobile devices are required to preserve alert messages in a consumer-accessible format and location for at least 24 hours or until deleted by the user.

[WEA-MDB-RQMT-0090] For LTE and later technologies, support of 360 maximum characters for alert message text is mandated. This requirement shall not change with the inclusion of Warning Area Coordinates associated with the WEA message.

5.1 Common Audio Attention Signal

The following are the requirements on the common audio attention signal from the *FCC First Report and Order,* FCC 08-99 [Ref 1]:

[WEA-MDB-RQMT-0110] A WEA-capable mobile device shall include an audio attention signal that meets the requirements of this clause:

a. The audio attention signal must have a temporal pattern of one long tone of two (2) seconds, followed by two short tones of one (1) second each, with a half (0.5) second interval between each tone. The entire sequence must be repeated twice with a half (0.5) second interval between each repetition.

> NOTE of clarification: The duration of the audio attention signal is 10.5 seconds and contains two occurrences of the audio attention signal temporal pattern. The following figure is an informative illustration for the temporal pattern of the common audio attention signal:

Figure 5.1: Temporal Pattern of Common Audio Attention Signal

b. For devices that have polyphonic capabilities, the audio attention signal must consist of the fundamental frequencies of 853 Hz and 960 Hz transmitted simultaneously.

c. For devices with only a monophonic capability, the audio attention signal must be 960 Hz.

d. The audio attention signal must be restricted to use for Alert Messages under WEA.

e. A device may include the capability to mute the audio attention signal (see Clause 8.3).

The following additional requirement on the common audio attention signal is from the second sentence of 47 CFR *§10.510 Embedded references* as specified in *Annex A Final Rules* of the FCC Report & Order on WEA enhancements, FCC 16-127 [Ref 9]:

[WEA-MDB-RQMT-0120] The user may be given the option to control if the common audio attention signal on the mobile device is to be activated when a WEA alert message is received during an active voice or data session.

NOTE: The common audio attention signal will not be activated if the user has opted-out of the alert type of the received WEA alert message and if the user has deselected or turned off the common audio attention signal.

5.2   Common Vibration Cadence

The following are the requirements on the common vibration cadence from the *FCC First Report and Order*, FCC 08-99 [Ref 1]:

[WEA-MDB-RQMT-0130] A WEA-capable mobile device shall include a vibration cadence capability that meets the requirements of this clause:

a. The vibration cadence must have a temporal pattern of one long vibration of two (2) seconds, followed by two short vibrations of one (1) second each, with a half (0.5) second interval between each vibration. The entire sequence must be repeated twice with a half (0.5) second interval between each repetition.

NOTE of clarification: The duration of the vibration cadence is 10.5 seconds and contains two occurrences of the vibration cadence temporal pattern. The following figure is an informative illustration for the temporal pattern of the common vibration cadence:
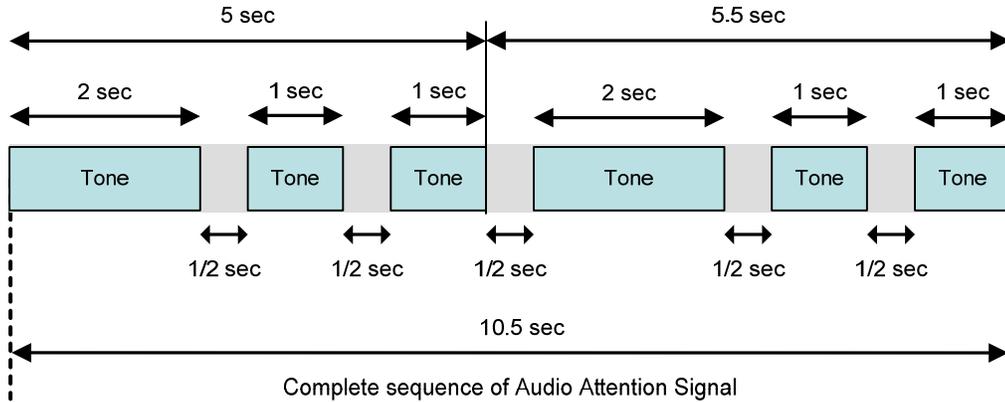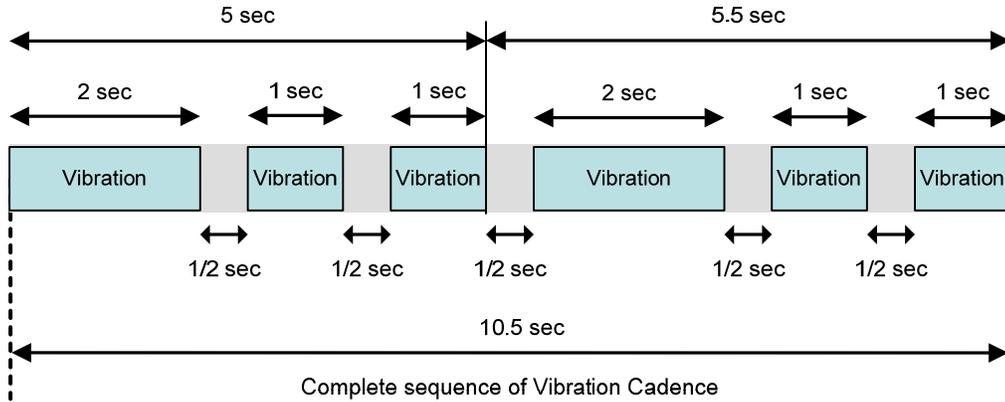
Figure 5.2: Temporal Pattern of Common Vibration Cadence

    b.   The vibration cadence must be restricted to use for Alert Messages under WEA.

    c.   A device may include the capability to mute the vibration cadence (see Clause 8.3).

The following additional requirement on the common vibration cadence is from the second sentence of 47 CFR *§10.510 Embedded references* as specified in *Annex A Final Rules* of the FCC Report & Order on WEA enhancements, FCC 16-127 [Ref 9]:

[WEA-MDB-RQMT-0140] The user may be given the option to control if the common vibration cadence on the mobile device is to be activated when a WEA alert message is received during an active voice or data session.

        NOTE: The common vibration cadence will not be activated if the user has opted-out of the alert type of the received WEA alert message and if the user has deselected or turned off the common vibration cadence.

6 General Mobile Device Requirements

[WEA-MDB-RQMT-0150] The CMSP and the mobile device vendors shall have the flexibility in the design and implementation of mobile devices in order to take the maximum advantage of advances in mobile device technologies and to account for the evolution of mobile devices and the capabilities of the future.

This clause contains the general guidelines and requirements for the functions to be performed by the mobile device:

[WEA-MDB-RQMT-0160] If both the WEA audio attention signal and vibration cadence alert modes are enabled, the temporal patterns of the two modes do not need to be synchronized.

[WEA-MDB-RQMT-0170] The presentation of the received WEA alert message should take priority over other mobile device functions (see Clause 6.2).

[WEA-MDB-RQMT-0130] The WEA alert message shall not preempt an active voice or data session (see Clause 6.1).

[WEA-MDB-RQMT-0180] The presentation of WEA alerts s to the user on the mobile device should be such that the WEA alerts are distinguishable from any other types of textual messages received by the mobile device subject to mobile device capabilities.

    a.   [WEA-MDB-RQMT-0190] Color cannot be a required method for distinguishing WEA alert messages from other types of text messages on the mobile device, since all mobile devices do not have color display capabilities.

    b.   [WEA-MDB-RQMT-0200] Since some individuals may have color blindness, color should not be used as the sole method for conveying alert information nor as the sole indicator to distinguish

WEA alert message from other messages.

[WEA-MDB-RQMT-0210] It is desirable to have the WEA displayable message text prominently presented on the mobile device consistent with user settings for presentation of incoming phone calls and SMS messages (including the illumination of the visual display) without user interaction when the WEA alert message is received.

[WEA-MDB-RQMT-0220] A duplicate WEA alert message which was previously presented to the user may be re-presented to the user following a power-on of the mobile device. The non-volatile storage of the WEA alert message identification on mobile devices is an implementation option.

[WEA-MDB-RQMT-0230] There shall be no requirement for language translation of alert text in the mobile device.

[WEA-MDB-RQMT-0240] Mobile devices shall not support any user interface capabilities to forward received WEA alerts, to reply to received WEA alerts, or to copy and paste WEA alert contents.

[WEA-MDB-RQMT-0250] The need to scroll or manipulate the mobile device to review the received WEA alert message should be minimized.

[WEA-MDB-RQMT-0260] The user should not be required to remember or to use a unique command to turn off the notification of the WEA alert message. A familiar command, consistent with the other commands used for call or message handling on the mobile device, is recommended.

[WEA-MDB-RQMT-0270] Mobile devices shall have the ability to recall previously presented alert messages for user review for 24 hours or until deleted by the user.

[WEA-MDB-RQMT-0280] The mobile device should use fonts for the display of the WEA alert message that are easily readable and decorative fonts should be available. The goal in the selection of the font is for easily recognizable characters especially for individuals with vision impairments. Examples of easily readable fonts would be Roman, Sans Serif, and Arial.

[WEA-MDB-RQMT-0290] If technically feasible, the mobile device display should provide a high contrast display and should provide adjustable font size.

[WEA-MDB-RQMT-0300] The mobile device may provide a unique indicator that identifies a stored WEA alert message.

    c.   This WEA alert message indicator would allow a user the ability to immediately recognize a previously received or stored WEA alert message.

[WEA-MDB-RQMT-0310] The mobile devices shall be able to receive, distinguish, and process WEA messages in multiple languages in accordance with the 3GPP TS 23.041 [Ref 8] specification.

[WEA-MDB-RQMT-0320] Embedded references (e.g., URLs, telephone numbers) in WEA alert messages shall be clickable by the mobile device user.

6.1   *Preemption of Voice and Data Calls*

The FCC in the *First Report & Order,* FCC 08-99 [Ref 1] stated that it would be contrary to the public interest if alert messages were to preempt certain active voice or data sessions. During a crisis, such as a terrorist attack, many individuals will be seeking emergency aid related to the actual event and other emergencies. In either circumstance, the public would be ill-served if their calls for urgent aid were summarily preempted. During emergencies, it is anticipated users will use their mobile devices to call loved ones, to call for help (e.g., 9-1-1), to report on what they are seeing, or to obtain further instructions. This may be a circuit-switched voice call, a VoIP call or other data session.

The Rule from the FCC First Report & Order, FCC 08-99 [Ref 1] is as follows:

    1.   Devices marketed for public use under the FCC Part 10 WEA Rules must not enable an Alert Message to preempt an active voice or data session.

The above rule from the FCC First Report & Order was modified in 47 CFR §10.510, *Call preemption prohibition* in *Annex A Final Rules,* of the FCC Report & Order on WEA enhancements, FCC 16-127 [Ref 9]. This modified rule is as follows:

[WEA-MDB-RQMT-0330] Devices marketed for public use under part 10 must present an Alert Message as soon as they receive it but may not enable an Alert Message to preempt an active voice or data session. If a mobile device receives a WEA Alert Message during an active voice or data session, the user may be given the option to control how the Alert Message is presented on the mobile device with respect to the use of the common vibration cadence and audio attention signal.

NOTE: The user options for the control of the common vibration cadence during an active voice or data session are defined in Clause 8.3. The user options for the control of the audio attention signal during an active voice or data session are defined in Clause 8.2.

This Rule is further clarified with the following requirements:

[WEA-MDB-RQMT-0340] The process of receiving, alerting, or presentation of a WEA message on a mobile device shall not prevent the capability of a user to initiate, receive, or disconnect a voice call or data session.

[WEA-MDB-RQMT-0350] The process of receiving, alerting, or presentation of a WEA message on a mobile device shall not terminate or replace a voice call or active data session (whereby the mobile station is actively sending or receiving data), nor be treated as a higher priority such that it will seize facilities that are being used to support a voice call or active data session.

[WEA-MDB-RQMT-0360] A momentary interruption of a voice call or active data session, such as a brief visual, audible and/or vibration indication that a WEA message has been received, is not considered preemption so long as the voice call/data session is not terminated and facilities to support that voice call or data session are not seized or released.

6.2   WEA Priority over Other Mobile Device Functions

The WEA alert messages are notifications of imminent threats to the user's life and property. It was the intent of the Commercial Mobile Service Alert Advisory Committee (CMSAAC) Recommendations [Ref 5] that the presentation of these WEA alert messages should be the highest priority activity of mobile device except that the presentation of the WEA alert message shall not preempt any active voice or data session (see Clause 6.1). The ability of the mobile device to support the presentation of the WEA alerts as the highest priority activity is subject to the limitations of the CMSP selected broadcast delivery technology and of the mobile device. However, it should be noted that the users would be ill-served if they did not receive the presentation of the WEA alert message because the user was involved in local mobile device activities when the WEA alert was received.

The following are examples of local mobile device activities, subject to mobile device capabilities, that might be in progress when a WEA alert message is received:

a. [WEA-MDB-RQMT-0370] The user is reading a received non-WEA message (e.g., SMS, MMS, Cell Broadcast message, or email message) when the WEA alert is received. If the received WEA alert message complies with the user's opt-in/opt-out options (see clause 8.1), the mobile device should present the WEA alert message on the visual display including any appropriate activation of the WEA audio attention signal and WEA vibration cadence. The ability for the mobile device to return to the non-WEA message at the point of interruption is mobile device implementation specific.

b. [WEA-MDB-RQMT-0380] The user is composing a SMS, MMS, or email message when the WEA alert is received. If the received WEA alert message complies with the user's opt-in/opt-out options (see Clause 8.1), the mobile device should present the WEA alert message on the visual display including any appropriate activation of the WEA audio attention signal and WEA vibration cadence. The ability for the mobile device to retain the text being composed and to return to the SMS, MMS, or email message creation at the point of interruption is mobile device implementation specific.

c. [WEA-MDB-RQMT-0390] The user is in the process of initiating a voice call (e.g., entering digits to dial but has not pushed the SEND key or equivalent) when the WEA alert is received. If the received WEA alert message complies with the user's opt-in/opt-out options (see clause 8.1), the mobile device should initiate any appropriate activation of the WEA audio attention signal and WEA vibration cadence. Additionally, the mobile device should present the WEA alert message

on the visual display if the mobile device is capable of retaining and restoring the entered digits after the display of the alert message and the ability of the user to initiate the voice call is not otherwise impaired (see Clause 6.1). The ability for the mobile device to retain and restore the entered digits after the display of the WEA alert message is implementation specific.

d. [WEA-MDB-RQMT-0400] The user is an instant messaging session when the WEA alert is received. If the received WEA alert message complies with the user's opt-in/opt-out options (see Clause 8.1), the mobile device should present the WEA alert message on the visual display including any appropriate activation of the WEA audio attention signal and WEA vibration cadence. The ability for the mobile device to retain and to return to the instant messaging session at the point of interruption is mobile device implementation specific.

e. [WEA-MDB-RQMT-0410] The user is playing a game or using the built-in camera functions when the WEA alert is received. If the received WEA alert message complies with the user's opt-in/opt-out options (see Clause 8.1), the mobile device should present the WEA alert message on the visual display including any appropriate activation of the WEA audio attention signal and WEA vibration cadence. The ability for the mobile device to return to the game or the built-in camera function at the point of interruption is mobile device implementation specific.

f. [WEA-MDB-RQMT-0420] The user is listening to a stored audio clip (e.g., MP3 file) or is watching a stored video clip when the WEA alert is received. If the received WEA alert message complies with the user's opt-in/opt-out options (see Clause 8.1, the mobile device should present the WEA alert message on the visual display including any appropriate activation of the WEA audio attention signal and WEA vibration cadence. The ability for the mobile device to return to the audio or video clip at the point of interruption is mobile device implementation specific.

g. [WEA-MDB-RQMT-0430] The user is reviewing and updating device and profile settings on the mobile device or the user is scrolling through the mobile device menus when the WEA alert is received. If the received WEA alert message complies with the user's opt-in/opt-out options (see Clause 8.1), the mobile device should present the WEA alert message on the visual display, including any appropriate activation of the WEA audio attention signal and WEA vibration cadence. The ability for the mobile device to return to the profile setting screen or the last viewed mobile device menu at the point of interruption is mobile device implementation specific.

[WEA-MDB-RQMT-0440] The presentation of a WEA alert message on the mobile device will interrupt the user's current mobile device activities except for the preemption of an active voice or data session. The ability of the mobile device to retain the user's state or input when the WEA alert message is presented is mobile device implementation specific.

6.3   Mobile Device Support of Required Monthly Test (RMT)

The 47 CFR Section 10.350 (6) of *Appendix B Final Rules* of the *FCC Second Report & Order* [Ref 7] indicates that a Participating CMSP may provide mobile devices with the capability of receiving Required Monthly Test (RMT) messages.

[WEA-MDB-RQMT-0450] The ability of a mobile device to receive and present RMT message is an optional capability.

The following are the requirements for any mobile device which supports this optional capability:

a. [WEA-MDB-RQMT-0460] The default configuration for presenting received RMT messages is "off".

b. [WEA-MDB-RQMT-0470] The mechanism for enabling the alerting and the presentation of received RMT messages is mobile device-specific, based upon CMSP policies, and is defined in Clause 8.1.

NOTE: Annex A provides an illustrative example of a mobile device WEA options menu which includes the optional menu-based RMT opt-in/opt-out option as defined in clause 8.1.

c. [WEA-MDB-RQMT-0480] The alerting and presentation of the RMT message on mobile devices which support this optional capability and have this optional capability enabled shall conform to

the requirements for the alerting and presentation of any WEA alert message as defined in this specification.

[WEA-MDB-RQMT-0490] A mobile device which does not support this optional capability shall not alert or present the RMT message to the user.

6.4   Mobile Device Support of State/Local WEA Test Messages

The Section 10.350(c) of *Annex A Final Rules* of the FCC Report & Order on WEA enhancements, FCC 16-127, [Ref 9] indicates that a Participating CMSP may provide mobile devices with the capability of receiving State/Local WEA Test messages. The following are the requirements for any mobile device which supports this capability:

[WEA-MDB-RQMT-0500] The default configuration for presenting received State/Local WEA Test messages is "off".

[WEA-MDB-RQMT-0510] The mechanism for enabling the alerting and the presentation of received State/Local WEA Test messages is defined in Clause 8.1.

[WEA-MDB-RQMT-0520] The alerting and presentation of the State/Local WEA Test message on mobile devices which support this capability shall conform to the requirements for the alerting and presentation of any WEA alert message as defined in this specification.

6.5   Mobile Device Handling of WEA Messages in Multiple Languages

This clause for the mobile device handling of WEA messages in multiple languages applies to mobile devices connected to GSM, UMTS, and LTE access technologies.

1. Section *9.4.1.2.3 Data Coding Scheme* of the 3GPP TS 23.041 [Ref 8] classifies the WEA Message Identifiers as either mandatory-to-receive by the mobile device or as optional-to-receive by the mobile device.

2. The WEA mandatory-to-receive Message Identifiers have values of 4370 through 4382, 4396, and 4398.

    a. In the US, the WEA messages with text in English language are broadcast with one of the mandatory-to-receive Message Identifiers.

    b. Outside of the US, the WEA messages with Message Identifiers in the mandatory-to-receive range could be broadcast in languages other than English. (See ATIS-0700025 [Ref 12]).

    c. [WEA-MDB-RQMT-0530] The mobile device processing of WEA messages with Message Identifiers in the mandatory-to-receive range overrides the user's WEA language preference setting (see Clause 8.4).

3. The WEA optional-to-receive Message Identifiers have values of 4383 through 4395, 4397, and 4399.

    a. In the US, the WEA messages with text in Spanish language are broadcast with one of the optional-to-receive Message Identifiers.

    b. Outside of the US, the WEA messages with Message Identifiers in the optional-to-receive range could be broadcast in any language (including English). (see ATIS-0700025 [Ref 12]).

    c. [WEA-MDB-RQMT-0540] The mobile device processing of WEA messages with Message Identifiers in the optional-to-receive range depends upon the user's WEA language preference setting (see Clause 8.4).

4. The language indicator contained within the Data Coding Scheme information element of the broadcast message identifies the language of the WEA alert message.

5. [WEA-MDB-RQMT-0550] The mobile device shall treat WEA messages received in multiple languages independently.

    a. The relationship of Message Identifiers with WEA message language is defined in ATIS-0700010, *WEA via EPS Public Warning System Specification* [Ref 11].

b. [WEA-MDB-RQMT-0560] The mobile device will not try to correlate an English WEA message with the equivalent Spanish WEA message (e.g., if the mobile device is receiving weather information in both English and Spanish, the mobile device will not try to correlate the equivalent WEA messages for the weather information).

c. [WEA-MDB-RQMT-0570] The receipt of a WEA message in a language other than English will have no implication on the presentation of the equivalent English WEA message.

6. [WEA-MDB-RQMT-0580] When WEA messages in multiple languages are received simultaneously, the WEA message shall be presented to the user in the same manner as multiple simultaneous WEA messages received in the same language (see Clause 7.9).

See Annex B where mobile device handling of WEA messages in multiple languages is shown in the form of an illustrative flow-chart.

6.6   Detection of Duplicate WEA Alerts

The FCC regulations for the detection and suppression of duplicate alerts are defined in 47 CFR §10.500, *General Requirements* of *Appendix C Final Rules,* of the FCC First Report and Order for the Commercial Mobile Alert System, FCC 08-99 [Ref 1].

[WEA-MDB-RQMT-0590] The duplication detection logic for the WEA messages shall be applied separately to each language.

[WEA-MDB-RQMT-0600] The duplicate WEA detection in a language shall be independent of the duplicate WEA message detection for an equivalent WEA message in another language.

a. For example: The duplicate WEA message detection for Spanish WEA message will be independent of the duplicate WEA message detection for any equivalent English WEA message.

[WEA-MDB-RQMT-0610] The duplication detection for WEA message shall be based only on Message Identifier and Serial Number as defined in 3GPP TS 23.041 [Ref 8] except as modified by this standard.

The 90-character maximum WEA alert message and the 360-character maximum WEA alert message in the same language from the same C-Interface message are broadcast with the same Message Identifier and Serial Number.

a. [WEA-MDB-RQMT-0620] Consequently, these WEA alert messages shall be identified to be duplicate WEA messages if both WEA alert messages are received by the same mobile device.

b. [WEA-MDB-RQMT-0630] Since WEA message content is not a factor in the detection of duplicate WEA messages, if the Alert Originators send multiple alert messages with the same text content, these multiple alert messages will not be identified as duplicate WEA alert messages since these alert messages will have different Serial Numbers.

6.7   Mobile Device Support of Public Safety Messages

Section 10.400 of *Annex A Final Rules* of the FCC Report & Order on WEA enhancements, FCC 16-127 [Ref 9], indicates that a Participating CMSP shall provide mobile devices with the capability of receiving Public Safety messages. The following are the requirements for any mobile device which supports this capability:

[WEA-MDB-RQMT-0640] The default configuration for presenting received Public Safety messages is "on".

[WEA-MDB-RQMT-0650] The mechanism for enabling the alerting and the presentation of received Public Safety messages is defined in Clause 8.1.

[WEA-MDB-RQMT-0660] The alerting and presentation of the Public Safety message on mobile devices shall conform to the requirements for the alerting and presentation of any WEA alert message as defined in this specification.

6.8 Mobile Device Support for Device-Based Geo-Fencing (DBGF)

[WEA-MDB-RQMT-0670] Mobile devices shall support the geo-fencing procedures in 3GPP TS 23.041 [Ref 8].

[WEA-MDB-RQMT-0680] Mobile devices shall perform DBGF only for WEA which could be presented based on user settings (e.g., opted-in, language setting).

[WEA-MDB-RQMT-0690] Mobile devices shall support decoding of message and information elements described in ATIS-0700041 [Ref 15].

[WEA-MDB-RQMT-0700] Mobile devices shall support Message Identifier 4400 for the "geo-fencing trigger message" as specified in 3GPP TS 23.041 [Ref 8]. This message is also called the WHAM in this document.

[WEA-MDB-RQMT-0710] Mobile devices shall support the Warning Area Coordinates parameter in the cell broadcast message to derive the Warning Area Geometries.

[WEA-MDB-RQMT-0720] The sum of Warning Area Geometries can contain a combined maximum of 10 polygons and circles. The cumulative number of coordinates to describe these geometries can be a maximum of 100 (e.g., 1 circle with 1 coordinate representing the center of the circle, 1 polygon with 60 coordinates, and 1 polygon with 39 coordinates). The mobile device shall be able to support these limits.

[WEA-MDB-RQMT-0730] If Warning Area Coordinates are not received with a WEA, the device shall bypass DBGF and present the alert according to the user's WEA settings.

[WEA-MDB-RQMT-0735] If Warning Area Coordinates are received with a WEA when the Location is turned OFF, the device shall bypass DBGF and present the alert according to the user's WEA settings.

[WEA-MDB-RQMT-0740] If Warning Area Coordinates are received with a WEA, and if the device cannot determine its location within Geo-Fencing Wait Time (as defined in ATIS-0700041 [Ref 15]), the device shall present the alert according to the user's WEA settings.

[WEA-MDB-RQMT-0750] When the DBGF process requests device location, the WEA capable mobile device shall utilize device-based positioning technologies with an accuracy level of better than 0.1 mile per the FCC requirement [Ref 14].

[WEA-MDB-RQMT-0760] If Warning Area Coordinates are received with a WEA, the mobile device shall determine its location and decide whether it is within any of the Warning Area Geometries.

    a. [WEA-MDB-RQMT-0770] If the mobile device is within any of the Warning Area Geometries, the device shall present the alert according to the user's WEA settings.

    b. [WEA-MDB-RQMT-0780] If the mobile device is not within any of the Warning Area Geometries, the device shall not present the alert, and in addition, shall store all the received alert information (e.g., data coding scheme, Warning Message Contents, Warning Area Coordinates, and Message ID, Serial Number of the WEA alert for future WHAM handling). The stored information shall not be accessible to the user.

[WEA-MDB-RQMT-0790] Upon receipt of a WHAM, the mobile device shall determine whether a previously received (stored) WEA message that was not previously presented matches any of the Message ID/Serial Number combinations included in the WHAM. If there is a match, the mobile device shall perform the DBGF process on the matching WEA message(s).

[WEA-MDB-RQMT-0800] The device shall retain the alert information for DBGF processing for up to 24 hours, or until the alert is presented to the user.

    NOTE: This retained alert information for DBGF processing is not accessible to the user.

7 Feature Interaction

This clause describes the features interactions between the WEA alert capabilities and the other potential functions and capabilities of the mobile device. The feature interactions described in this clause are only a representative list and not an exhaustive list of the possible feature actions in order to provide general guidance on feature interactions to the mobile device manufacturers.

The representative feature interactions described in this clause are as follows:

    1.   WEA reception while mobile device busy.

2.   WEA message initiation of other functions on mobile device.

3.   Behavior when WEA alert received after SMS/MMS.

4.   Behavior when WEA alert received after non-WEA broadcast message.

5.   Behavior when SMS/MMS received after WEA alert.

6.   Behavior when non-WEA broadcast message received after WEA alert.

7.   Behavior when incoming phone call received after WEA alert.

8.   Behavior when voice mail notification received after WEA alert.

9.   Behavior for multiple WEA alerts.

Some feature interaction descriptions in the following clauses rely, in part, on user "acknowledgement" of WEA. In other words, user interactions may impact the presentation actions of the mobile device. One example of this would be having the user tap the WEA notification displayed to acknowledge receiving the alert.

7.1   Reception While Mobile Device Busy

[WEA-MDB-RQMT-0810] When the mobile device is engaged in an active voice or data session, the mobile device shall be capable of receiving WEA messages. However, mobile devices engaged in active voice or data sessions on legacy (2G and 3G) networks may not be technically capable of receiving a WEA message until the active voice or data session concludes.

[WEA-MDB-RQMT-0820] The mobile device may receive and present WEA message, but while doing so the mobile device shall conform to requirements in Clause 6.1.

7.2   WEA Message Initiation of Other Functions on Mobile Device

The *FCC First Report and Order*, FCC 08-99 [Ref 1] states the following:

"A CMAS Alert Message processed by a Participating CMS Provider must not include an embedded Uniform Resource Locator (URL), which is a reference (an address) to a resource on the internet, or an embedded telephone number. This prohibition does not apply to Presidential Alerts."[9]

However, on September 29, 2016, the FCC issued a new Report & Order on WEA Enhancements [Ref 9] which supersedes the above restrictions on embedded URLs and embedded telephone numbers. In 47 Code of Federal Regulations (C.F.R.) Section 10.441 of *Appendix A Final Rules* of the FCC Report and Order on WEA Enhancements, FCC 16-127 [Ref 9], all restrictions have been removed for all WEA messages regarding embedded URL or embedded telephone number. Embedded URLs and telephone numbers are allowed in all WEA 3.0 messages. The previous 47 C.F.R. Section 10.440 defining the URL and telephone number restrictions has been removed in *Appendix A Final Rules* of the FCC Report and Order on WEA Enhancements, FCC 16-127 [Ref 9].

[WEA-MDB-RQMT-0830] The mobile device shall present the displayable text of the alert message as received.

[WEA-MDB-RQMT-0840] The mobile device shall support additional functions such as providing hyperlinks which allows user initiation of phone calls or data sessions using an embedded telephone number or URL.

NOTE: The URL syntax is defined in IETF RFC 3986 [Ref 10].

7.3   Behavior When WEA Alert Received After SMS/MMS

[WEA-MDB-RQMT-0850] Upon receiving a regular SMS/MMS message, the mobile device will alert the user and upon user interaction, the mobile device will display the WEA message.

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[9] Presidential Alerts have been renamed National Alerts.

[WEA-MDB-RQMT-0860] If a WEA alert is received after the SMS/MMS message and it is a National Alert, the mobile device will display the WEA message content.

[WEA-MDB-RQMT-0870] If a WEA alert is received after the SMS/MMS message and the user has not requested to opt-out of this category, the mobile device will display the WEA message content.

[WEA-MDB-RQMT-0880] If the user is in the process of viewing an SMS/MMS message and a WEA alert is received, the mobile device may opt to display the WEA alert text or the mobile device may opt to send the WEA audio attention signal to the user advising them of the incoming WEA alert message.

7.4 Behavior When WEA Alert Received after Non-WEA Broadcast Message

[WEA-MDB-RQMT-0890] When a WEA National Alert is received after a non-WEA Broadcast Message, the mobile device will process the WEA alert message and will display the appropriate message content to the user.

[WEA-MDB-RQMT-0900] When a WEA non-National Alert is received after a non-WEA Broadcast Message, the mobile device will process the WEA alert, and if the user has not requested to opt-out of this alert category, the mobile device will display the appropriate message content to the user.

7.5 Behavior When SMS/MMS Received After WEA Alert

[WEA-MDB-RQMT-0910] If an SMS/MMS message is received after the WEA alert, the mobile device will display the WEA alert text until the user acknowledges this message. The mobile device will process the SMS/MMS message under normal operation of the mobile device and will display these messages upon user interaction.

7.6 Behavior When Non-WEA Broadcast Message Received After WEA Alert

[WEA-MDB-RQMT-0920] If a non-WEA Broadcast message is received after the WEA alert, the mobile device will display the WEA alert text until the user acknowledges this message. The mobile device will process the non-WEA Broadcast message under normal operation of the mobile device and will display these messages upon user interaction.

7.7 Behavior When Incoming Phone Call Received After WEA Alert

[WEA-MDB-RQMT-0930] If an incoming call is received while the WEA alert text is being displayed, the mobile device will continue to display the WEA alert text until the user acknowledges this message. The mobile device will receive and process the incoming call and will allow the user the option of answering.

[WEA-MDB-RQMT-0940] The mobile device will indicate to the user that it has an incoming call in a manner consistent with normal mobile device behavior (e.g., alert tone, vibration or display of incoming call notification that does not cover the full screen) while at the same time preserving the ability of the user to view the WEA alert message.

7.8 Behavior When Voice Mail Notification Received After WEA Alert

[WEA-MDB-RQMT-0950] If a voice mail notification is received after a WEA Alert, the mobile device will display the WEA alert text until the user acknowledges this message.

[WEA-MDB-RQMT-0960] The mobile device will process the voice mail notification under normal operation of the mobile device and will display these messages upon user interaction.

[WEA-MDB-RQMT-0970] The voice mail notification will not interrupt the WEA alert display text.

7.9 Behavior for Multiple WEA Alerts

[WEA-MDB-RQMT-0980] The mobile device is in idle. The mobile device receives the first WEA alert in any language supported by the mobile device and the received alert message is a National Alert or the received alert message complies with the opt-in/opt-out options, along with preferred WEA language. The mobile device plays the audible WEA audio attention signal or the WEA vibration cadence in accordance with the user's settings. The mobile device presents the text portion of the received WEA alert message.

[WEA-MDB-RQMT-0990] If the mobile device is currently still playing the audio attention signal and/or vibration cadence from a current WEA, then receives a new WEA (not a duplicate of a previously received WEA) that should be presented (see opt-in/opt-out options in Clause 8.1 and language settings in Clause 8.4), the mobile device may extend the duration of the signal/cadence in progress. The mobile device may also present a visual indication with the total number of un-acknowledged alerts.

[WEA-MDB-RQMT-1000] The mobile device may present the WEA alerts in a different order than received. National Alerts may be presented first.

8 WEA Configuration Options

[WEA-MDB-RQMT-1010] The mobile device shall maintain configuration of WEA alert options including the following:

1. User's settings of WEA alert opt-in/opt-out options.
2. User's settings for the WEA audio attention signal options.
3. User's settings for the WEA vibration cadence options.
4. User's settings for the WEA preferred language options.

8.1 WEA Alert Opt-Out Options

This clause defines the mobile device requirements for the support of user WEA alert opt-out options. The term "opt-out" in this specification refers to the ability of the user to configure the mobile device to not alert and present the receipt of a WEA alert message for which the user has chosen to opt-out of receiving.

NOTE: The mobile device may or may not actually receive the WEA alert message that the user has chosen to opt-out of receiving; this is subject to the capability of the delivery technology and mobile device and is beyond the scope of this specification. Opt-out in this specification refers only to the alerting and presentation of the alert message to the user.

WEA defines five classes of alerts: 1) *National*; 2) *Child Abduction Emergency* [e.g., America's Missing Broadcast Emergency Response (AMBER)]; 3) *Imminent Threat*; 4) *Public Safety*; and 5) *State/Local WEA Test*. The Imminent Threat class includes the subclasses *Extreme* and *Severe*. The following table defines Extreme and Severe alerts:

Table 8.1: WEA - Imminent Threat Message Categorization

WEA Message Category	Severity	Urgency	Certainty
Extreme Alert Message	Extreme	Immediate	Observed
	Extreme	Immediate	Likely
Severe Alert Message	Extreme	Expected	Observed
	Extreme	Expected	Likely
	Severe	Immediate	Observed
	Severe	Immediate	Likely
	Severe	Expected	Observed

WEA Message Category	Severity	Urgency	Certainty
	Severe	Expected	Likely

The definitions and requirements for the user options for opt-out of WEA alerts and messages are as follows:

[WEA-MDB-RQMT-1020] The default setting for the WEA alert opt-out options shall be for the mobile device to be configured to present all WEA alert messages except as noted below.

[WEA-MDB-RQMT-1030] The default setting for the RMT option is "off".

a. [WEA-MDB-RQMT-1040] Mobile devices with the optional RMT capability may be configured to present the received RMT messages either via a menu option, a command string, or other CMSP/mobile device specific options.

[WEA-MDB-RQMT-1050] National Alerts shall not be eligible for opt-out and the mobile device shall be configured to always present National Alerts.

[WEA-MDB-RQMT-1060] The mobile device shall support the capability for a user to opt-out of having the device present Child Abduction Emergency/AMBER Alert messages.

[WEA-MDB-RQMT-1070] For all Imminent Threat Alert messages, the mobile device shall support a simple opt-out process that is based on the category of imminent threat of the WEA alert message. Imminent threats are categorized as Extreme or Severe as indicated by the value of the severity, urgency, and certainty attributes of the original alert message. The definitions of Extreme and Severe WEA alerts are provided in Table 8.1 above.

[WEA-MDB-RQMT-1080] The mobile device opt-out process for imminent threat alert messages shall provide the user with the following choices: the capability to configure the mobile device to not present Extreme or Severe imminent threat alerts, or to present Extreme imminent threat alerts only.

a. These choices can also be viewed as follows:

5. Opt-out of "all imminent threat messages":
   o Neither Extreme nor Severe imminent threats alerts are presented.

6. Opt-out of "Severe imminent threat" messages:
   o Only Extreme imminent threat alerts are presented.

b. [WEA-MDB-RQMT-1090] If the user chooses not to opt-out of either "all imminent threat messages" or "Severe imminent threat" messages, then the Extreme and Severe imminent threats alerts are both presented.

NOTE: Extreme and Severe imminent threat opt-out processing is performed independent of the Child Abduction Emergency/AMBER Alert opt-out settings and processing. Presentation of National Alerts is not affected by these settings. Presentation of RMT messages and State/Local WEA Test messages is not affected by these settings.

[WEA-MDB-RQMT-1100] The mobile device shall support the capability for a user to opt-out of presentation of Public Safety messages.

[WEA-MDB-RQMT-1110] The mobile device shall support the capability for a user to opt-in for presentation of State/Local WEA Test messages.

[WEA-MDB-RQMT-1120] The default setting for the State/Local WEA Test message option shall be "OFF".

[WEA-MDB-RQMT-1130] The capabilities for the user to opt-out of certain types and classes of WEA messages shall be language independent.

a. [WEA-MDB-RQMT-1140] If a user opts out of a specific type of WEA message, then that opt-out selection applies to all WEA messages of that specific type, regardless of the language of the WEA message.

b. [WEA-MDB-RQMT-1150] These opt-out options apply equally to WEA alert messages in any language, including English.

[WEA-MDB-RQMT-1160] Because of differences in the way CMSPs and device manufacturers provision their menus and user interfaces, CMSPs and device manufacturers shall have flexibility on how to present the opt-out choices to users.

NOTE: See Annex A for an illustrative example of WEA opt-out options menu.

[WEA-MDB-RQMT-1170] To provide for consistency in consumer education, all opt-out requirements listed in the above items shall be supported by all mobile devices.

[WEA-MDB-RQMT-1180] The default setting for the WEA-Exercise message shall be "OFF" and is not exposed to the user via a menu.

[WEA-MDB-RQMT-1190] The default setting for the WEA CMSP-defined message shall be "OFF" and is not exposed to the user via a menu.

8.2   WEA Audio Attention Signal Options

The following requirements define the mobile device options available to the user that are related to the WEA audio attention signal:

[WEA-MDB-RQMT-1200] If the end user has deselected or turned off the mobile device audio and alarms, the WEA audio attention signal follows the mobile device settings and shall not be activated upon receipt of a WEA alert.

[WEA-MDB-RQMT-1210] If the end user has deselected or turned off the mobile device audio and alarms and has deselected or turned off the vibration capabilities of the mobile device, neither the WEA audio attention signal nor the special emergency alert vibration cadence shall be activated upon receipt of a WEA alert consistent with the mobile device settings.

[WEA-MDB-RQMT-1220] The WEA audio attention signal shall not be selectable by the user for any mobile device functions.

[WEA-MDB-RQMT-1230] If the end user does not acknowledge the WEA alert to the mobile device, the mobile device should support the capability to activate and deactivate the WEA audio attention signal. The frequency and interval of the activation and deactivation of the WEA audio attention signal is dependent on mobile device capabilities.

[WEA-MDB-RQMT-1240] If the mobile device supports the optional capability to allow the user to select the audio attention signal activation during an active voice and data call, the options are:

    a.   No audio attention signal.

    b.   Generic notification audio attention signal (e.g., a short beep) according to general device setting.

    c.   WEA audio attention signal.

8.3   WEA Vibration Cadence Options

The following requirements define the mobile device options available to the user that are related to the WEA vibration cadence:

[WEA-MDB-RQMT-1250] If the end user has deselected or turned off the vibration capabilities of the mobile device, the special emergency alert vibration cadence follows the mobile device settings and shall not be activated upon receipt of a WEA alert.

[WEA-MDB-RQMT-1260] If the end user has deselected or turned off the mobile device audio and alarms and has deselected or turned off the vibration capabilities of the mobile device, neither the WEA audio attention signal nor the special emergency alert vibration cadence shall be activated upon receipt of a WEA alert consistent with the mobile device settings.

[WEA-MDB-RQMT-1270] The WEA vibration cadence for the WEA alert shall not be selectable by the user for any mobile device functions.

[WEA-MDB-RQMT-1280] If the end user does not acknowledge the WEA alert to the mobile device, the mobile device should support the capability to activate and deactivate the special emergency alert vibration cadence. The frequency and interval of the activation and deactivation of the special emergency alert vibration cadence is dependent on mobile device capabilities.

[WEA-MDB-RQMT-1290] If the mobile device supports the optional capability to allow the user to select the vibration cadence activation during an active voice and data call, the options are:

    a. No vibration cadence.

    b. Generic notification vibration cadence (e.g., a short vibration) according to general device setting.

    c. WEA vibration cadence.

8.4 WEA Preferred Language Options

This clause defines the requirements for the support of user configuration options for the user's preferred languages of WEA alert messages.

[WEA-MDB-RQMT-1300] The WEA preferred language configuration options shall apply regardless of the country in which the mobile device is operating.

[WEA-MDB-RQMT-1310] The user WEA preferred language configuration options shall apply to Message Identifiers 4383 to 4395, 4397, and 4399 (see ATIS-0700010 [Ref 11]).

[WEA-MDB-RQMT-1320] The deselection of English WEA alert messages shall only be allowed for WEA alert messages with Message Identifiers in the 3GPP TS 23.041 [Ref 8] defined "optional-to-receive" Message Identifier values of 4383 through 4395, 4397, and 4399.

[WEA-MDB-RQMT-1330] The WEA preferred languages configurations option may be an explicit configuration menu option on the mobile device.

[WEA-MDB-RQMT-1340] Mobile devices shall be able to support the configuration of one or more languages as WEA preferred languages.

[WEA-MDB-RQMT-1350] Both Spanish and English shall be supported as WEA preferred language options.

[WEA-MDB-RQMT-1360] The WEA preferred language configuration options shall apply to all classes of WEA messages (see Clause 8.1).

9 Considerations for Individuals with Special Needs

Section 603(b)(3)(F) of the *WARN Act* [Ref 4] required that the CMSAAC include representatives of national organizations representing people with special needs, including individuals with disabilities and the elderly. The CMSAAC concluded, with the concurrent of the FCC, that Congress intended to include the elderly and those individuals with disabilities among the class of user to which electing CMS providers are to deliver WEA alerts.

The requirements contained in Clause 5 and Clause 6 of this specification, which originated from the CMSAAC recommendations contained in the *FCC Notice of Proposed Rulemaking (NPRM)* [Ref 5], took into consideration individuals with special needs, including the elderly. Those requirements benefit all users in an emergency, not only those with special needs. The WEA-compliant mobile devices according to the requirements specified in Clause 5 and Clause 6 meet the considerations for individuals with special needs.

[WEA-MDB-RQMT-1370] An additional optional capability is to provide text-to-speech conversion for WEA alert messages. One area of particular concern is that people who are blind or visually impaired will be most underserved by a solely text-based alert. It is recognized that these users could be best served by having the alert made available in speech format.

[WEA-MDB-RQMT-1380] An optional capability is for mobile devices to provide a screen reading and text-to-speech conversion capability. Such specialized mobile devices, which are geared for people who are blind and who have low vision, could be a solution.

Mobile device support of the Title 47 of the United States Code (U.S.C.) Section 225 *Telecommunications services for hearing-impaired and speech-impaired individuals* [Ref 6] (e.g., support of TTY devices and hearing aids) is outside the scope of this specification.

Annex A
(informative)

A WEA Mobile Device Opt-Out Options Menu

This informative annex contains an illustrative examples of a mobile device menu for the user to opt-in or opt-out of various types of WEA message types. See Clause 8.1 for the definition of the various WEA 3.0 message types and their associated default configuration values.

These notes apply to the following illustrative examples of the mobile device WEA options menu:

1.   National Alerts are always presented irrespective of the options chosen in the WEA options menu.

2.   When the "Both Extreme and Severe Alerts" option under "Imminent Threat" heading on the WEA options menu is set to "ON", the "Extreme Alerts" option should not be able to be set to "OFF".

Not all options shown in these examples are required to be available as user settings. The following figure is an illustrative example of a mobile device WEA options menu which does not include the optional RMT opt-in/opt-out option as defined in Clause 8.1:

Legend: The option value shown in Red indicates the default value

Figure A.1: Illustrative WEA Options Menu without RMT Option

The following figure is an illustrative example of a mobile device WEA options menu which includes the optional menu-based RMT opt-in/opt-out option as defined in Clause 8.1:

EMERGENCY ALERTS

NATIONAL ALERTS   ON

IMMINENT THREAT ALERTS

    BOTH EXTREME AND SEVERE ALERTS   ON/OFF

    EXTREME ALERTS   ON/OFF

AMBER ALERTS   ON/OFF

PUBLIC SAFETY ALERTS   ON/OFF

WEA TEST ALERTS

STATE/LOCAL TEST ALERTS   ON/OFF

REQUIRED MONTHLY TEST(RMT) ALERTS   ON/OFF

Legend: The option value shown in Red indicates the default value

Figure A.2: Illustrative WEA Options Menu with RMT Option

Annex B
(informative)

B   Flow Chart to Illustrate Mobile Device Principles

This informative Annex presents the steps mobile devices execute to handle multi-language WEA messages accommodating the geo-fencing aspects. The flow charts also show the steps mobile device execute to handle the opt-out requirements of WEA message reception and display.

The figure B.1 shows the main handling of a CBS message.

When the Message Identifier value associated with CBS message is a WHAM, the processing continues as shown in figure B.3 WHAM Handling.

When the message class-based user opt-in and language preference permit the device to present the WEA message to the user, the steps involved in handling of the message presentation accommodating the device-based geo-fencing are shown in figure B.2 WEA Presentation Handling.

When the message class-based user opt-in and language preference do not permit the device to present the WEA message to the user, the received WEA message is discarded.

As shown in figure B.2, when WEA message is not presented due to DBGF, the device shall store the message information and mark that the message was not presented (i.e., not displayed).
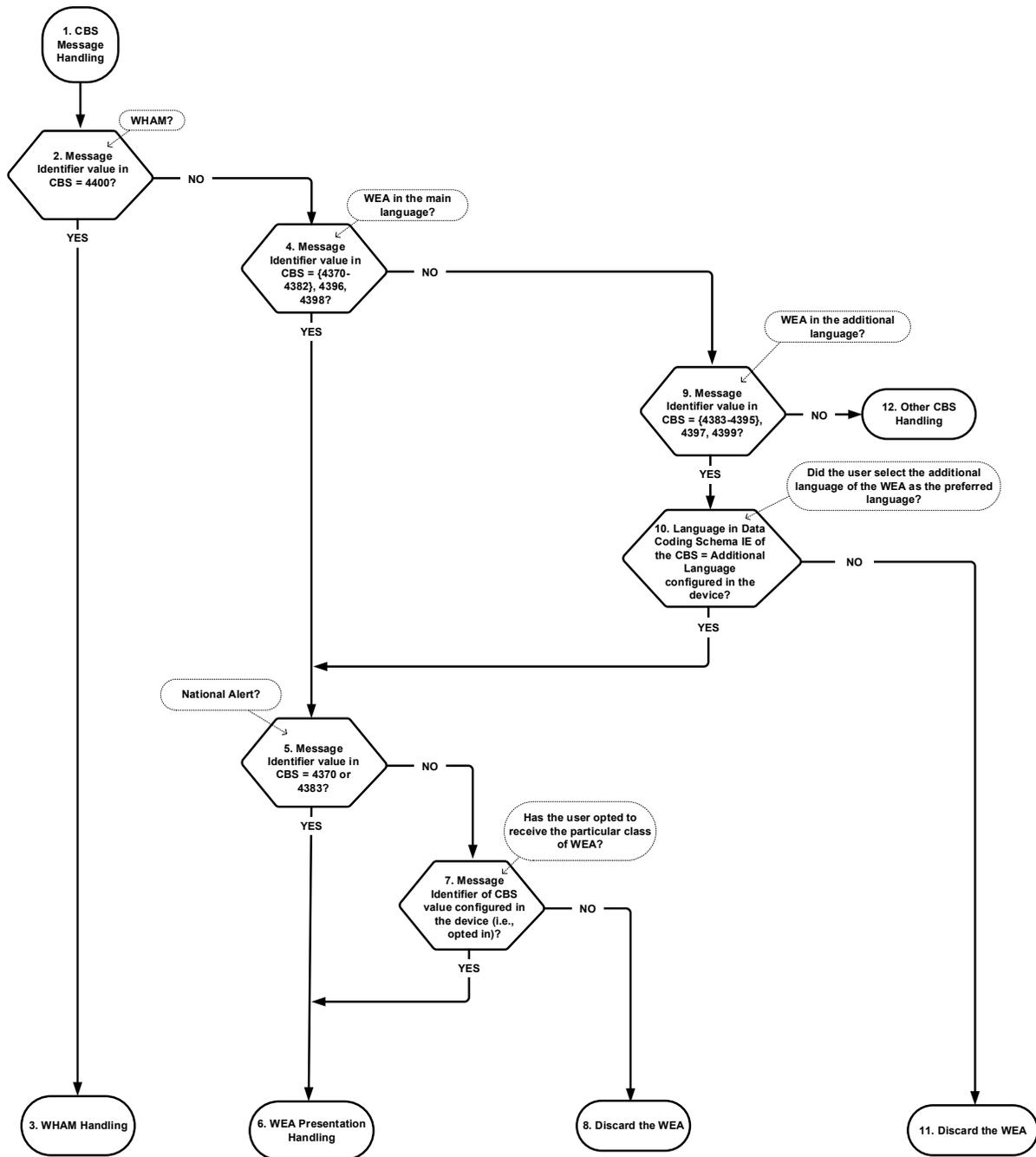
B.1 Main Flow

Figure B.1: Flow Chart Illustrating Mobile Device Principles with Multi-Language Support

The alert is presented if it was not previously presented. The descriptions shown inside the boxes of the flow chart are the functions performed within the mobile devices in order to accomplish the WEA functions identified outside of the boxes.

For example:

> A Message Identifier value is compared to the value 4370 and to 4383 (shown inside the box) in order to determine whether or not a WEA message corresponds to a National Alert (shown outside the box).

The Message Identifier values in the range 4370 to 4382, and the values 4396 and 4398 are associated with the English language WEA message. The Message Identifier values in the range 4383 and 4395, and the values 4397 and 4399 are associated with the Additional language, i.e., Spanish, WEA message. The presentation of an alert in an additional language is done only if the user has selected that additional language as a preferred language.

Once all the rules that allow the presentation of an alert are met, then additional checks will have to be made to apply the geo-fencing rules. These are explained in the Clause B.2 WEA Presentation Handling.
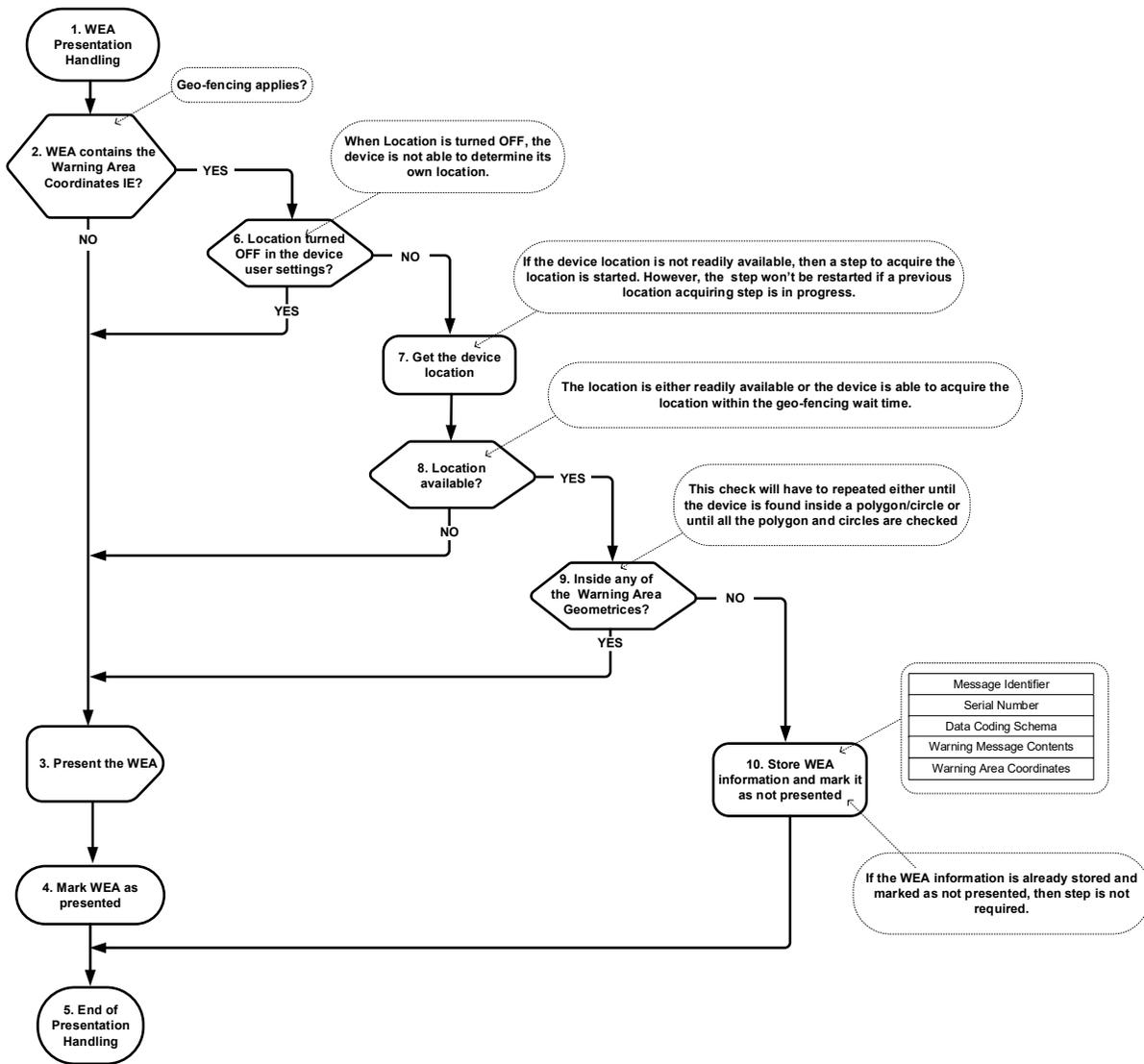
B.2 WEA Presentation Handling

Figure B.2: WEA Presentation Handling

If the received WEA alert does not contain the Warning Area Coordinates IE, the device presents the alert to the user without applying the device-based geo-fencing rules.

When the device-based geo-fencing rules are to be applied, the device will present the alert to the user if the device is not able to determine its own location, or Location is turned OFF for the device.

Step 7 shows that location determination can take some time. The device will continue its other processing while the location is being determined. Also, it is possible that while location is being determined additional WEA messages may arrive and the result of the location may be shared with the other WEA messages that require geo-fencing.

When an alert is not presented to the user for the conditions illustrated in Clause B.2, the device stores all the details of the alerts deferred handling. The information stored are:

- Message Identifier
- Serial Number
- Data Coding Scheme
- Warning Message Contents
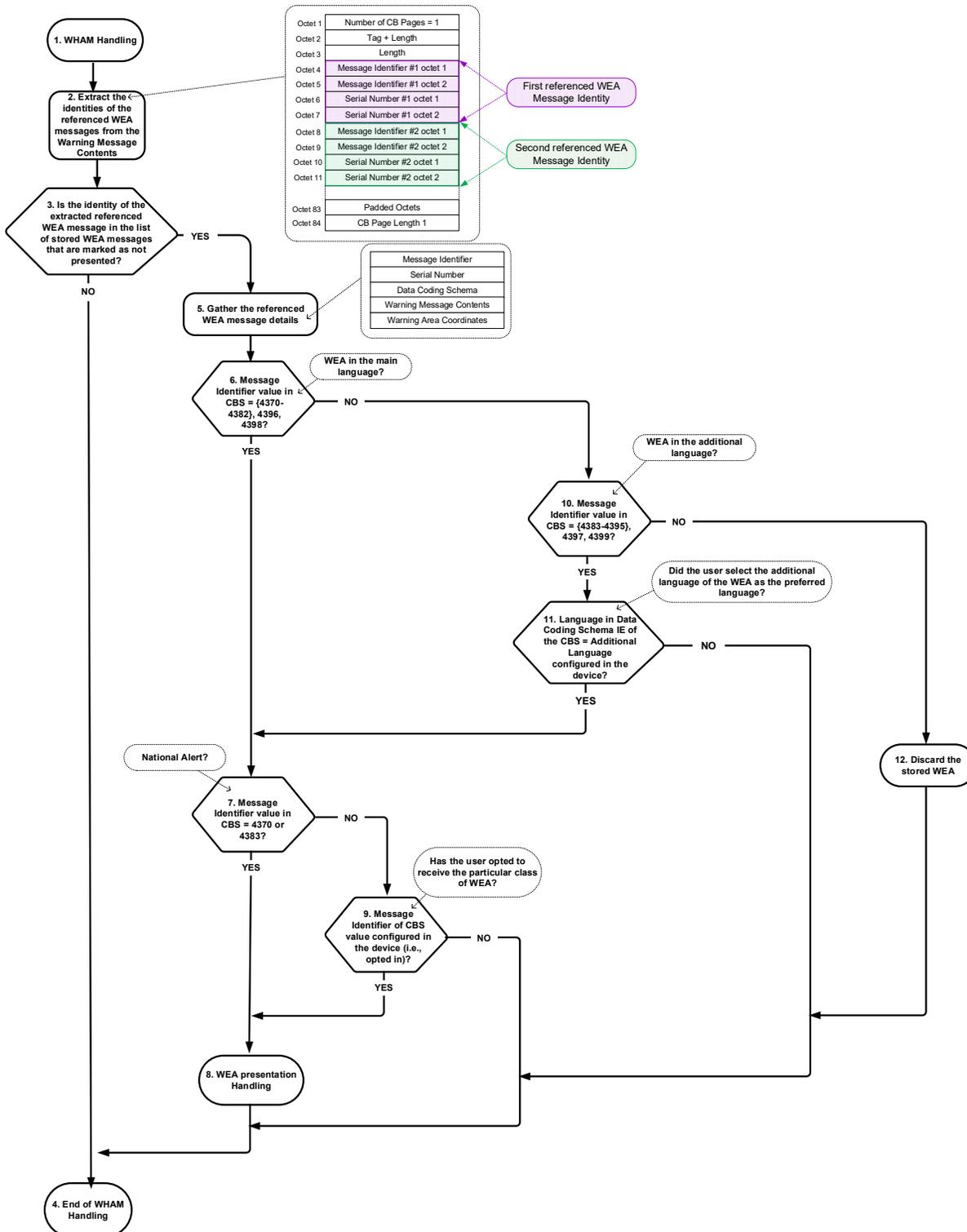- Warning Area Coordinates.

B.3 WHAM Handling

Figure B.3: WHAM Handling

Most of the steps shown in figure B.3 are same as the steps shown in figure B.1 with a few deviations.

When the message class-based user opt-in and language preference permit the device to present the alert to the user, the steps involved in handling of the message presentation accommodating the device-based geo-fencing are shown in figure B.2 WEA Display Handling. These steps are same as in figure B.1.

When the message class-based user opt-in and language preference do not permit the device to present the alert to the user, no further processing is done for the alert as a part of this WHAM handling.