



ATIS-0700008

ATIS Standard on -

**CELL BROADCAST ENTITY (CBE) TO CELL BROADCAST CENTER (CBC)  
INTERFACE SPECIFICATION**



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### *ATIS-0700008, Cell Broadcast Entity (CBE) to Cell Broadcast Center (CBC) Interface Specification*

Is an ATIS Standard developed by the **Mobile/Wireless GSM/3G System and Network (G3GSN)** Subcommittee under the **ATIS Wireless Technologies and Systems Committee (WTSC)**.

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**ATIS-0700008**

ATIS Standard on

# **CELL BROADCAST ENTITY (CBE) TO CELL BROADCAST CENTER (CBC) INTERFACE SPECIFICATION**

**Alliance for Telecommunications Industry Solutions**

Approved March 2010

## **Abstract**

This Standard defines the interface and message transfer protocol between a Cell Broadcast Entity (CBE) and a Cell Broadcast Center (CBC) to support text-based Cell Broadcast Services.

**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) – formerly T1P1 -- 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 a optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

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 initiation or issuance of the letter ballot for this document, WTSC, which was responsible for its development, had the following roster:

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ATIS Standard on –

# Cell Broadcast Entity (CBE) to Cell Broadcast Center (CBC) Interface Specification

## 1 SCOPE, PURPOSE, & APPLICATION

### 1.1 Scope

The scope of this Standard is the definition of the interface and message transfer protocol between a Cell Broadcast Entity (CBE) and a Cell Broadcast Center (CBC) to support text-based Cell Broadcast services.

### 1.2 Purpose

The purpose of this Standard is to define a message transfer protocol on the interface between the CBE and CBC independent of the technology and application; to identify the requirements on the CBE and CBC to support the interface; and to identify requirements to support assumptions made in other specifications, such as the 3GPP specifications (e.g., [Ref 1]).

One of the main goals behind CBE to CBC interface is to have a common interface from CBE to CBC that is independent of Cell Broadcast applications and the technologies associated with the CMSP infrastructure. Any application-dependent functions are to be handled by the CBE, whereas any technology-dependent functions (e.g., GSM, UMTS, LTE) are to be handled by the CBC.

### 1.3 Application

This specification is applicable to a CBE interfacing to a CBC. This specification is independent of the application supported by the Cell Broadcast Service, and is intended to support any text-based application over the Cell Broadcast Service.

## 2 NORMATIVE 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.

[Ref 1] 3GPP TS 23.041, *3rd Generation Partnership Project; Technical Specification Group Terminals; Technical realization of Cell Broadcast Service (CBS)*.<sup>1</sup>

[Ref 2] IETF RFC3629, *UTF-8, a transformation format of ISO 10646; November 2003*.<sup>2</sup>

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<sup>1</sup> This document is available from the 3<sup>rd</sup> Generation Partnership Project (3GPP). < <http://www.3gpp.org/> >

<sup>2</sup> This document is available from the Internet Engineering Task Force (IETF). < <http://www.ietf.org> >

[Ref 3] 3GPP TS 21.905, *Vocabulary for 3GPP Specifications*.<sup>1</sup>

[Ref 4] *Federal Information Processing Standards Publication 6-4, Counties and Equivalent Entities of the United States, its Possessions and Associated Areas; National Institute of Standards and Technology (NIST); August 1990*.<sup>3</sup>

[Ref 5] WGS-84, *National Geospatial Intelligence Agency, Department of Defense World Geodetic 103 System 1984, NGA Technical 104 Report TR8350.2; January 2000*.<sup>4</sup>

[Ref 6] IETF RFC793, *Transmission Control Protocol; September 1981*.<sup>2</sup>

[Ref 7] 3GPP TS 23.038, *3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Alphabets and language-specific information*.<sup>1</sup>

### 3 DEFINITIONS, ACRONYMS, & ABBREVIATIONS

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This clause identifies definitions, acronyms, and abbreviations used in this document. Additional information may be found in 3GPP TR 21.905, *Vocabulary for 3GPP Specifications* [Ref 3].

#### 3.1 Definitions

**3.1.1 Cell Broadcast Service:** Cell Broadcast Service (CBS) permits a number of unacknowledged general CBS messages to be broadcast to all receivers within a particular region. CBS messages are broadcast to defined geographical areas known as *cell broadcast areas*.

**3.1.2 Cell Broadcast Area:** Cell Broadcast Area is the geographical area for the broadcast of the CBS message. Cell Broadcast Areas may be comprised of one or more cells up to the entire wireless operator network. Individual CBS messages will be assigned their own Cell Broadcast Areas.

#### 3.2 Acronyms & Abbreviations

ATIS	Alliance for Telecommunications Industry Solutions
CB	Cell Broadcast
CBC	Cell Broadcast Center
CBE	Cell Broadcast Entity
CBEM	Cell Broadcast Entity Message
CBS	Cell Broadcast Service
CMSP	Commercial Mobile Service Provider
FIPS	Federal Information Processing Standard
GNIS	Geographic Names Information System
GSM	Global System for Mobile communications
LTE	Long Term Evolution
SAME	Specific Area Message Encoding
UMTS	Universal Mobile Telecommunications System

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<sup>3</sup> This document is available from the National Institute of Technology and Standards (NIST). < <http://www.nist.gov/aes> >

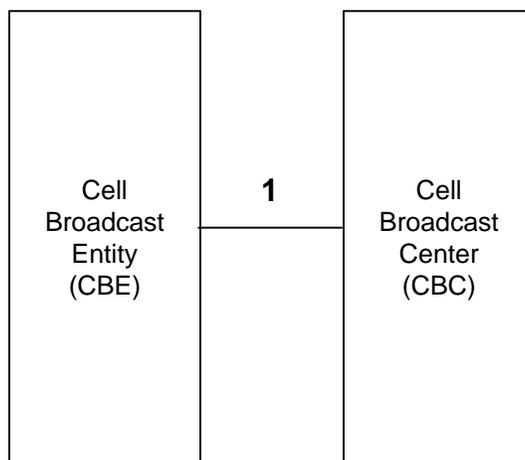
<sup>4</sup> This document is available at < [http://earth-info.nga.mil/GandG/publications/tr8350.2/tr8350\\_2.html](http://earth-info.nga.mil/GandG/publications/tr8350.2/tr8350_2.html) >.

WGS	World Geodetic System
XML	eXtensible Markup Language

## 4 FUNCTIONAL ARCHITECTURE

---

The CBE to CBC network architecture is as follows:



**Figure 1: CBE to CBC Network Architecture**

The term *Cell Broadcast Entity (CBE)* is used to designate the logical entity that provides the Cell Broadcast related information to the Cell Broadcast Center (CBC). Depending on the Cell Broadcast application, a specific platform may take the role of a CBE while interfacing to the CBC. The messages/parameters between a CBE and the CBC are referred to as *CBEM messages/parameters*.

This standard provides an XML-based protocol for the support of messages transfer on link 1 between the CBE and the CBC.

## 5 REQUIREMENTS

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This clause identifies requirements specific to the message transfer on link 1 between the CBE and CBC.

### 5.1 General CBE-CBC Interface Requirements

This clause defines the general interface requirements between the CBE and the CBC:

1. This interface shall only support text-based Cell Broadcast Messages encoded in UTF-8 [Ref. 2].
2. A CBE to CBC Cancel Request Message applies to the entire Cell Broadcast Area of the referenced CBS message.

### 5.2 Cell Broadcast Center (CBC) Requirements

This clause defines the CBC requirements for the support of the Cell Broadcast Service:

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1. The CBC shall be responsible for all aspects of formatting CBS messages.
2. The CBC shall verify that a CBE is authorized to initiate a CBS request with the associated CBS message identifier, geo-targeting information, display mode, and retransmission parameters.
3. The CBC shall retain the information for a CBS message until the CBS message is updated, canceled, or the broadcast is complete.
4. The CBCs shall have the capability to be deployed in either an active-active or an active-standby server configuration with synchronization of transactional state between the multiple associated CBCs.
5. It shall not be treated or reported as an error condition or as an invalid CBS message if none of the cell sites serviced by the CBC are within the Cell Broadcast Area of the CBS message.
6. A CBC shall have the capability to adjust the CBE-requested retransmission frequency and duration depending on network capabilities, network conditions, and/or operator policy.
7. A CBC shall support scheduling of initial and update messages.
8. The CBC shall validate that the originating CBE for a CBS message is authorized to send the CBS message to the indicated CBS message id.

NOTE: The method for the CBC to authorize the CBE and any associated error handling is beyond the scope of this Standard.

### 5.3 Cell Broadcast Entity (CBE) Requirements

This clause defines the CBE requirements for the support of the Cell Broadcast Service:

1. The CBE shall be responsible for determining the CBS message identifier corresponding to the CBS application supported by the CBE, and sending that CBS message identifier to the CBC.
2. The CBE shall provide the CBC with the geographic area where the CBS message is requested to be broadcast. This is defined as the geo-target information (e.g., geo-code, polygon, circle) associated with the specified message. As such, the CBE is not required to have awareness of the cell sites or RF coverage areas supported by the CBCs.
3. A network may support one or more CBCs. Thus, the CBE shall have the capability to send each CBS message to all or some of the CBCs served by the CBE.
4. The CBE shall be responsible for defining the frequency and duration of the retransmissions of CBE messages. The method for determining the frequency and duration of retransmissions is service-dependent and outside the scope of this specification. The CBE will provide the retransmission information to the CBC.
5. The CBEs shall have the capability to be deployed in either an active-active or an active-standby server configuration with synchronization of transactional state between the multiple associated CBEs.
6. The CBE shall have the responsibility to determine and pass on to the CBC all the parameters that are necessary to identify a CBS message.
7. For an update of the CBS Message, if the Cell Broadcast area or message identifier parameters change, the CBE shall handle a CBE to CBC Update Request Message by first sending a CBE to CBC Cancel Request Message followed by a new CBE to CBC Initial Request Message to the CBC.

### 5.4 Transport Protocol

The Transmission Control Protocol (TCP) [Ref 6] shall be the transport protocol used to transmit the CBEM messages between the CBE and the CBC.

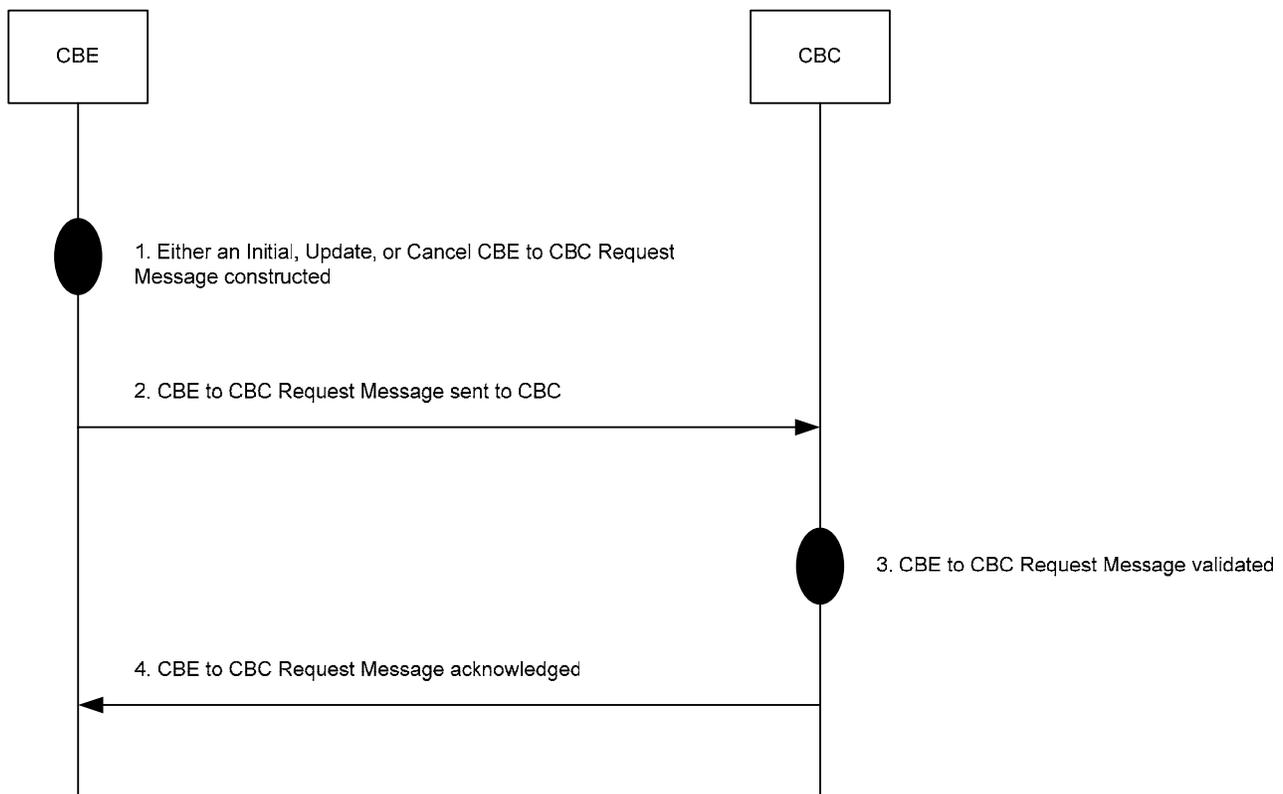
## 6 CALL FLOWS

This clause provides the following call flows for the CBE to CBC interface:

- ◆ Valid CBE to CBC Request message call flow.
- ◆ Invalid CBE to CBC Request message call flow.
- ◆ Transmission Control message call flows.

### 6.1 Valid CBE to CBC Request Message Call Flow

The following is the call flow for a valid CBE to CBC Initial Request Message, a valid CBE to CBC Update Request Message, or a valid CBE to CBC Cancel Request Message:

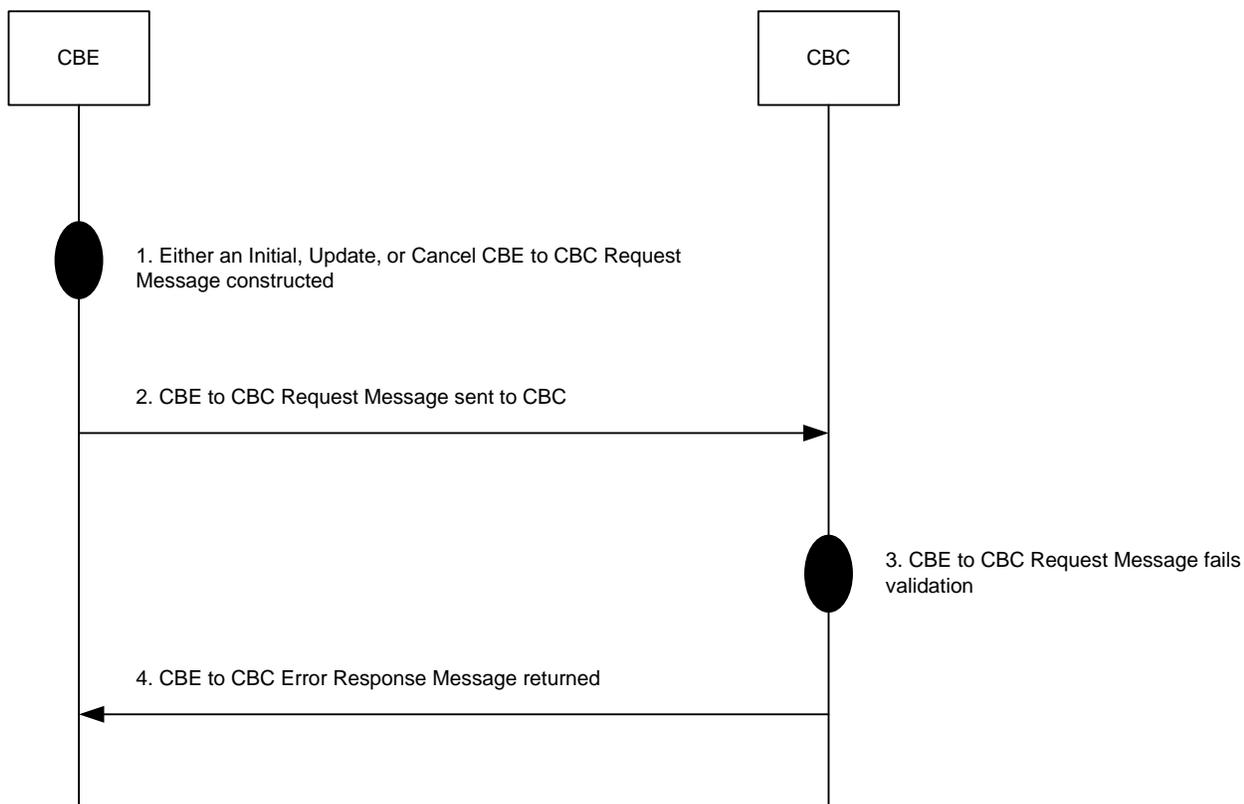


**Figure 2: Valid CBE to CBC Request Message Call Flow**

1. The CBE constructs either a CBE to CBC Initial Request Message, a CBE to CBC Update Request Message, or a CBE to CBC Cancel Request Message.
2. The CBE sends to the CBC the CBE to CBC Request Message which was constructed in the previous step.
3. The CBC validates the received CBE to CBC Request Message.
4. The CBC sends an acknowledgement to the CBE for the CBE to CBC Request Message.

### 6.2 Invalid CBE to CBC Request Message Call Flow

The following is the call flow for an invalid CBE to CBC Initial Request Message, an invalid CBE to CBC Update Request Message, or an invalid CBE to CBC Cancel Request Message:



**Figure 3: Invalid CBE to CBC Request Message Call Flow**

1. The CBE constructs either a CBE to CBC Initial Request Message, a CBE to CBC Update Request Message, or a CBE to CBC Cancel Request Message.
2. The CBE sends to the CBC the CBE to CBC Request Message which was constructed in the previous step.
3. The CBC validates the received CBE to CBC Request Message and the received CBE to CBC Request Message fails validation.
4. The CBC sends an error response to the CBE for the CBE to CBC Request Message.

### 6.3 Transmission Control Message Call Flows

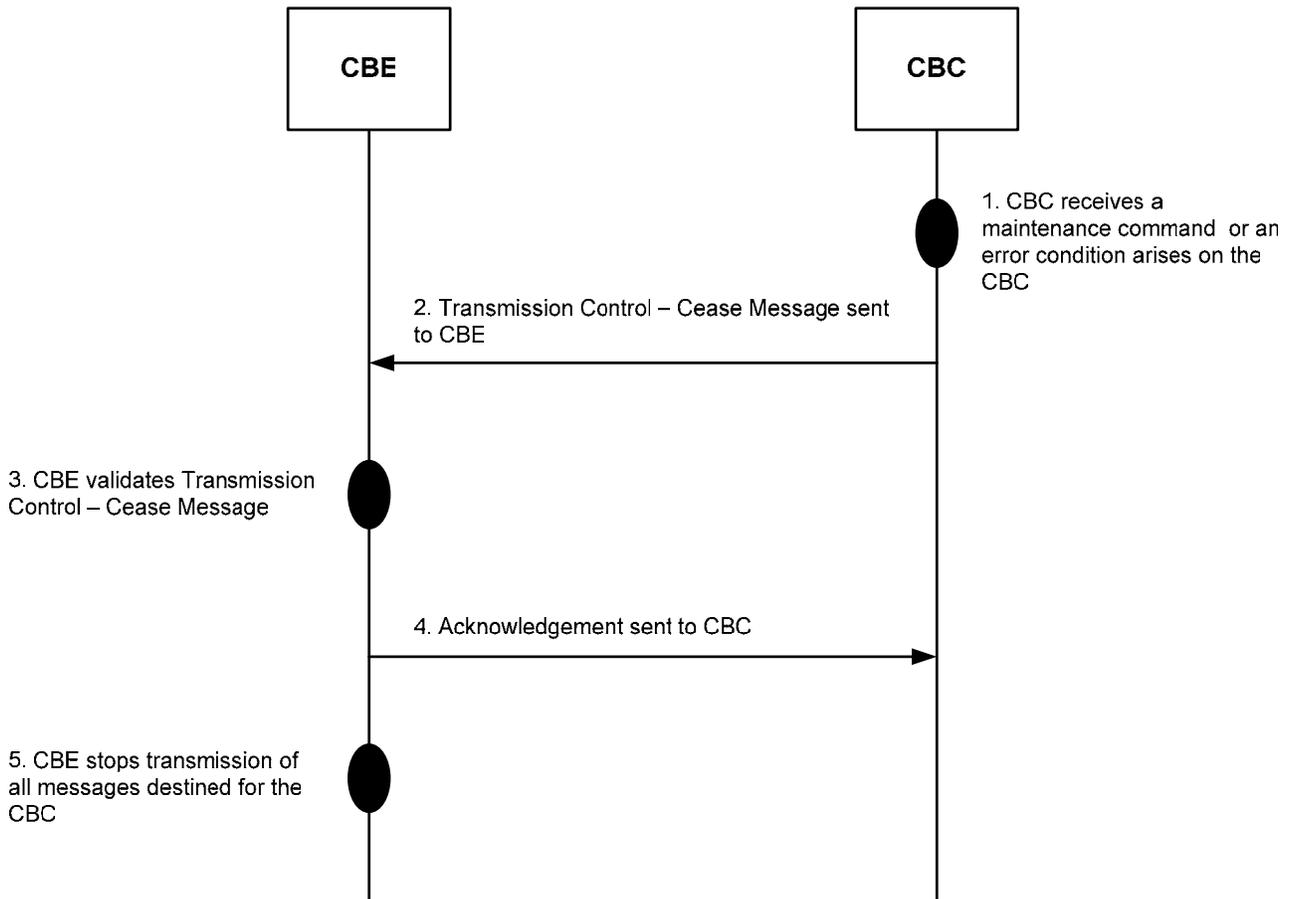
The CBC may request message traffic on the CBE to CBC Interface destined for the CBC be ceased or resumed due to a maintenance condition on the CBC or internal error processing. This clause provides the following transmission control call flows:

- ◆ Cease transmissions call flow.
- ◆ Resume transmissions call flow.

### 6.3.1 Cease Transmissions Call Flow

The CBC may request transmissions of all messages destined for the CBC be ceased due to a maintenance condition on the CBC or internal error processing.

The following figure with its descriptions of the associated call flow steps defines the call flow for a Transmission Control - Cease Message sent from the CBC to the CBE over the CBE to CBC Interface:

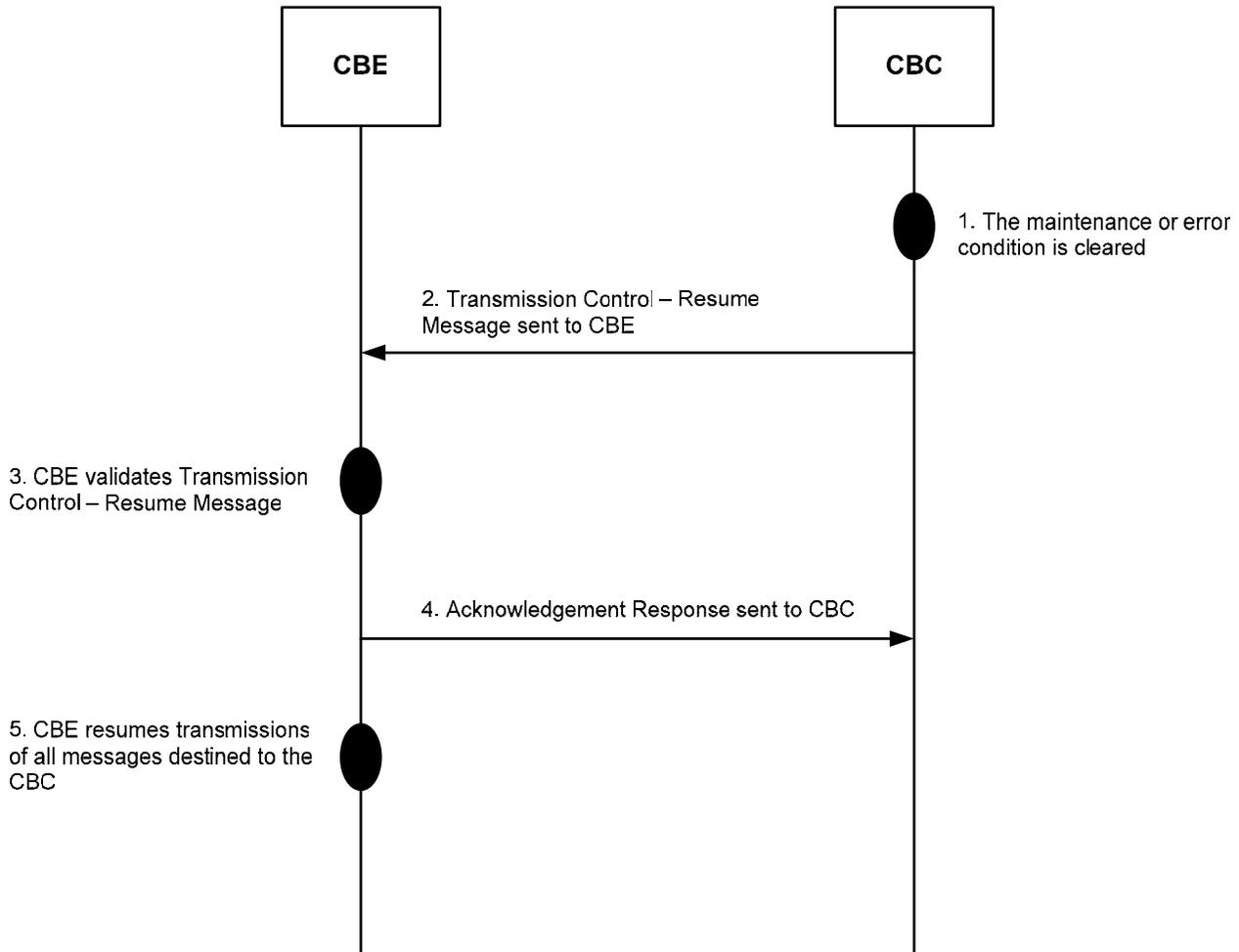


**Figure 4: Cease Transmissions Call Flow**

1. The CBC receives a maintenance command to request the CBE stop transmissions of all messages destined for the CBC or an error condition arises, which prevents the CBC from processing any further messages from the CBE.
2. The CBC sends the Transmission Control - Cease Message to the CBE via the CBE to CBC Interface.
3. The CBE validates the received Transmission Control - Cease Message from the CBC.
4. The CBE sends an Acknowledge Response back to the CBC.  
NOTE: The CBC may chose to ignore the acknowledgement response.
5. The CBE stops transmissions of all messages destined for the CBC.

### 6.3.2 Resume Transmissions Call Flow

Once the maintenance or error condition that triggered the stop of message transmission over the CBE to CBC Interface is cleared, the CBC informs the CBE that transmission of messages may resume. The following figure with its descriptions of the associated call flow steps defines the call flow for a Transmission Control – Resume Message sent from the CBC to the CBE over the CBE to CBC Interface:



**Figure 5: Resume Transmissions Call Flow**

1. The maintenance or error condition that triggered the stop of message transmission over the CBE to CBC Interface is cleared.
2. The CBC sends the Transmission Control – Resume Message to the CBE via the CBE to CBC Interface.
3. The CBE validates the received Transmission Control – Resume Message from the CBC.
4. The CBE sends an Acknowledge Response back to the CBC.
5. The CBE may resume transmission of messages destined to the CBC.

## 7 CBE TO CBC INTERFACE MESSAGE STRUCTURE

This clause describes the structure of the message between the CBE and the CBC. The description of this message structure contains the following:

- ◆ Definition of the object model between CBE and CBC.
- ◆ Description of the elements and associated values of the CBE to CBC Message (CBEM).
- ◆ Definition of the XML message schema for the CBEM message.
- ◆ Definition of the response codes and response descriptions for the messages between the CBE and the CBC.

### 7.1 CBEM Document Object Model

The following figure portrays the CBEM document object model:

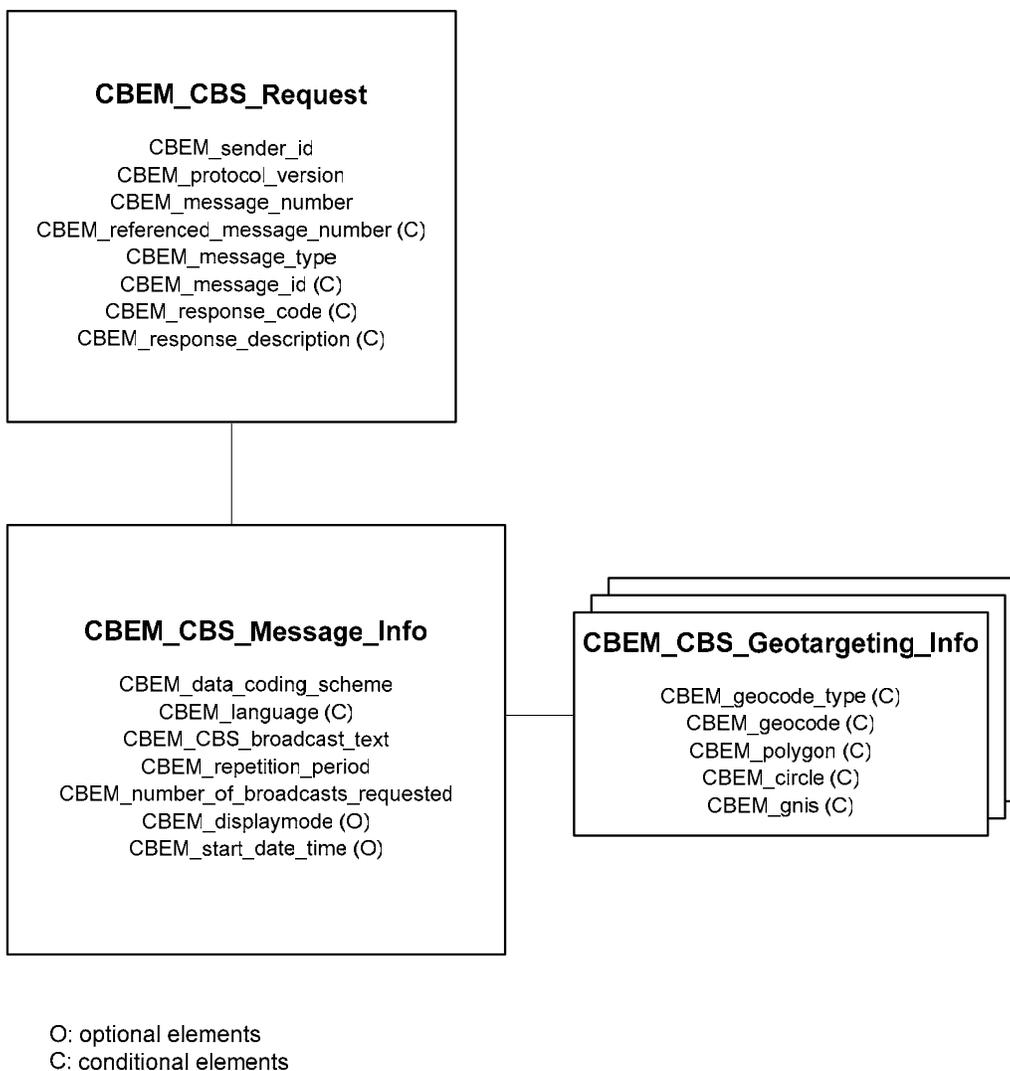


Figure 6: CBEM Document Object Model

## 7.2 CBEM Message Types

The CBEM messages transmitted between the CBE and the CBC can contain various segments. The following table defines the segments for each type of CBEM message:

**Table 1: CBEM Message Segments**

CBEM MESSAGE	CBEM MESSAGE SEGMENTS
CBE to CBC Initial Request Message	one <CBEM_CBS_Request> segment one <CBEM_CBS_Message_Info> segment one or more <CBEM_CBS_Geotargeting_Info> segments
CBE to CBC Update Request Message	one <CBEM_CBS_Request> segment one <CBEM_CBS_Message_Info> segment
CBE to CBC Cancel Request Message	one <CBEM_CBS_Request> segment
Acknowledgement Response	one <CBEM_CBS_Request> segment
Error Response	one <CBEM_CBS_Request> segment
Transmission Control - Cease	one <CBEM_CBS_Request> segment
Transmission Control - Resume	one <CBEM_CBS_Request> segment

## 7.3 Elements of CBE to CBC Message

Each CBE to CBC message consists of a <CBEM\_CBS\_Request> segment, which may contain one <CBEM\_CBS\_Message\_Info> segment and one or more <CBEM\_CBS\_Geotargeting\_Info> segments.

The definitions of Mandatory, Optional, and Conditional used in the element definition tables within this clause are as follows:

- ◆ *Mandatory (M)*: This element is required when the associated segment is included in the CBEM message.
- ◆ *Optional (O)*: This element may be included in the segment. The entry in the Definition column defines when the element is optional and the interpretation of the missing optional element.
- ◆ *Conditional (C)*: This element may be required in the segment depending on the contents of other elements. The entry in the Definition column for this conditional element defines the conditions and values for this conditional element.

### 7.3.1 CBEM\_CBS\_Request Segment Element Definition

The following table contains the definition of the elements of the CBEM\_CBS\_Request segment:

**Table 2: CBEM\_CBS\_Request Segment Element Definition**

CBEM ELEMENT	MANDATORY/ OPTIONAL/ CONDITIONAL	DEFINITION
CBEM_CBS_Request	M	<p>Identifies the segment with elements described in the following rows of this table.</p> <p>(1) Surrounds CBEM CBS Request segment sub-elements.</p> <p>(2) Must include the xmlns attribute referencing the CBEM URN as the namespace, e.g.:  <code>&lt;cbem:CBEM_CBS_Request xmlns:cbem="urn:xxx:xxxx:xx:cbem:1.0"&gt;</code>                      [sub-elements]  <code>&lt;/cbem:CBEM_CBS_Request&gt;</code></p> <p>(3) In addition to the specified sub-elements, may contain one <code>&lt;CBEM_CBS_Message_Info&gt;</code> block and zero or more of <code>&lt;CBEM_CBS_Geotargeting_Info&gt;</code> segments.</p>
CBEM_protocol_version	M	<p>The version of the CBEM protocol.</p> <p>Used by the CBE and the CBC to identify the protocol version of the CBEM protocol.</p> <p>The value of the CBEM_protocol_version element for this version of the standard shall be 1.0.</p>
CBEM_sender_id	M	<p>URI or IP address of the entity sending the CBEM message.</p>
CBEM_message_number	M	<p>Identifies the unique message number of the message. This may also be used by the CBC to generate specific CBS parameters, such as the Serial Number parameter in the CBS Write-Replace indication.</p> <p>CBEM_message_number is a string uniquely identifying the message. The CBEM_message_number is assigned by the CBE for request messages initiated by the CBE. The CBEM_message_number is assigned by the CBC for messages initiated by the CBC.</p> <p>When the value is assigned by the CBE it may follow the format:  <code>&lt;CBE Identifier&gt;- &lt;message number&gt;</code>                      where  <code>&lt;CBE Identifier&gt;</code> is a unique string defined the CBE and  <code>&lt;message number&gt;</code> where <code>&lt;message number&gt;</code> is the number assigned by the CBE to this message.</p> <p>When the value is assigned by the CBC, it may follow the format:  <code>&lt;CBC Identifier&gt; - &lt;message number.&gt;</code>                      where  <code>&lt;CBC Identifier&gt;</code> is a unique string defined the CBC and  <code>&lt;message number&gt;</code> where <code>&lt;message number&gt;</code> is the number assigned by the CBC to this message.</p> <p>The CBC shall be responsible for generating and required mapping of the CBEM_message_number to any CBS parameters, such as the Serial Number parameter.</p>

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CBEM ELEMENT	MANDATORY/ OPTIONAL/ CONDITIONAL	DEFINITION
CBEM_referenced_message_number	C	<p>Identifies the referenced message number. This is used in CBEM message types of CBS Update Request, CBS Cancel Request, Ack, and Error. For CBS Update Request and CBS Cancel Request message types, this is used to associate the message with the previous message to be updated or cancelled. For Ack and Error message types, this is used to associate the Ack and Error to the message received from the sending entity (CBS Request, CBS Update Request, CBS Cancel Request, Transmission Control - Cease, or Transmission Control - Resume).</p> <p>CBEM_referenced_message_number is a string uniquely identifying the message.</p> <p>When the value is assigned by the CBE, it may follow the format:            &lt;CBE Identifier&gt;- &lt;message number&gt;            where            &lt;CBE Identifier&gt; is a unique string defined by the CBE and &lt;message number&gt; where &lt;message number&gt; is the number assigned by the CBE to this message.</p> <p>When the value is assigned by the CBC, it may follow the format:            &lt;CBC Identifier&gt;- &lt;message number&gt;            where            &lt;CBC Identifier&gt; is a unique string defined by the CBC and &lt;message number&gt; where &lt;message number&gt; is the number assigned by the CBC to this message.</p>
CBEM_message_type	M	<p>This element identifies the message type for the request to the CBC.</p> <p>Code Values:</p> <p>“<b>CBS Request</b>” - A request to initiate a cell broadcast message with the information contained in the CBEM_CBS_Message_Info segment.</p> <p>“<b>CBS Update Request</b>” - Updates and supersedes the earlier message(s) identified in &lt;CBEM_referenced_message_number&gt;.</p> <p>“<b>CBS Cancel Request</b>” - Cancels the earlier message(s) identified in &lt;CBEM_referenced_message_number&gt;.</p> <p>“<b>Ack</b>” - Acknowledges receipt and acceptance of the message(s) identified in &lt;CBEM_referenced_message_number&gt;.</p> <p>“<b>Error</b>” indicates rejection of the message(s) identified in &lt;CBEM_referenced_message_number&gt;; explanation should appear in &lt;CBEM_response_description&gt;.</p> <p>“<b>Transmission Control - Cease</b>” indicates the far end is to cease transmission.</p> <p>“<b>Transmission Control - Resume</b>” indicates the far end may resume transmission.</p>
CBEM_CBS_message_id	C	<p>Required for CBS Request or CBS Cancel Request message type.</p> <p>Identifies the Cell Broadcast message id of the CBEM message. Code values are defined in 3GPP TS 23.041 [Ref 1].</p>

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CBEM ELEMENT	MANDATORY/ OPTIONAL/ CONDITIONAL	DEFINITION
CBEM_response_code	C	<p>This element contains the CBEM Response Codes (see 7.5, <i>Definition of CBEM Response Codes</i>) that may be returned from the CBC to the CBE in response to a received CBS request message or from the CBE to CBC in response to a received Transmission Control Message via the CBE to CBC interface. This element is included when necessary based upon specific use case.</p> <p>Multiple instances may occur within a single &lt;CBEM_CBS_Request&gt; block. Each occurrence of the CBEM_response_code element should have a corresponding occurrence of the CBEM_response_description element.</p>
CBEM_response_description	C	<p>The CBE or CBC may use the CBEM_response_description element to populate this element on response messages. (See 7.5, <i>Definition of CBEM Response Codes</i>).</p> <p>Multiple instances may occur within a single &lt;CBEM_CBS_Request&gt; block. Each occurrence of the CBEM_response_description element should have a corresponding occurrence of the CBEM_response_code element.</p>

### 7.3.2 CBEM\_CBS\_Message\_Info Segment Element Definition

The following table contains the definition of the elements of the CBEM\_CBS\_Message\_Info segment:

**Table 3: CBEM\_CBS\_Message\_Info Segment Element Definition**

CBEM ELEMENT	MANDATORY/ OPTIONAL/ CONDITIONAL	DEFINITION
CBEM_CBS_Message_Info	C	<p>Identifies the segment with elements described in the following rows of this table.</p> <ol style="list-style-type: none"> <li>(1) Surrounds CBEM_CBS_Message_Info segment sub-elements.</li> <li>(2) Only a single occurrence is permitted within a single &lt;CBEM_CBS_Request&gt;.</li> <li>(3) Required for a CBEM_message_type of CBS Request and CBS Update Request.</li> </ol>
CBEM_data_coding_scheme	M	<p>Identifies the alphabet or coding employed for the message characters.</p> <p>Code Values per 3GPP TS 23.038 [Ref 7]:</p> <p>“<b>GSM_7_Bit_Coding</b>” - Mobile device specific handling of messages using the GSM 7 bit default alphabet</p> <p>“<b>Class_0_GSM_7_Bit_Coding</b>” - Immediate display messages using the GSM 7 bit default alphabet.</p> <p>“<b>Class_0_UCS2_character_set</b>” - Immediate display messages using the UCS2 character set.</p> <p>“<b>Class_1_UCS2_character_set</b>” - Mobile device specific handling of messages in UCS2 character set.</p> <p>“<b>Binary</b>” - Class 2 (U)SIM specific binary message.</p> <p>NOTE: Use of the “<b>Binary</b>” data coding scheme is beyond the scope of this version of the Standard.</p>
CBEM_language	C	<p>Identifies the language of the information in the CBS broadcast text for messages when CBEM_data_coding_scheme has a value of “<b>GSM_7_Bit_Coding</b>”</p> <p>Code Values:</p> <p>“<b>English</b>”</p> <p>“<b>Spanish</b>”</p> <p>“<b>French</b>”</p> <p>“<b>German</b>”</p> <p>“<b>Italian</b>”</p> <p>“<b>Dutch</b>”</p> <p>“<b>Swedish</b>”</p> <p>“<b>Danish</b>”</p> <p>“<b>Portuguese</b>”</p> <p>“<b>Finnish</b>”</p> <p>“<b>Norwegian</b>”</p> <p>“<b>Greek</b>”</p> <p>“<b>Turkish</b>”</p> <p>“<b>Hungarian</b>”</p> <p>“<b>Polish</b>”</p> <p>“<b>Czech</b>”</p> <p>“<b>Hebrew</b>”</p> <p>“<b>Arabic</b>”</p> <p>“<b>Russian</b>”</p> <p>“<b>Icelandic</b>”</p>

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CBEM ELEMENT	MANDATORY/ OPTIONAL/ CONDITIONAL	DEFINITION
CBEM_CBS_broadcast_text	M	Contains the text to be broadcast.
CBEM_repetition_period	M	<p>This specifies the repetition period for the CBS message. This indicates the period of time in seconds after which broadcast of the CBS message should be repeated. The value of repetition period may take any value from 1 to 86,400 seconds. The CBC will map the value of the repetition period into the repetition parameters of the associated air interface technology.</p>
CBEM_number_of_broadcasts_requested	M	<p>This specifies the number of times the CBS message is to be broadcast. CBEM_number_of_broadcasts_requested may take any value from 0 to 65,535. If the parameter is set to 0 then the CBS message will be broadcast indefinitely (i.e., until the CBC receives an appropriate cancel indication).</p>
CBEM_displaymode	O	<p>The display mode indicates whether the CBS message is supposed to be on the display all the time ("immediate") or only when the user want to see it ("normal").</p> <p>Code values:            "0" is normal (default value if element is not present).            "1" is immediate display.</p>
CBEM_start_date_time	O	<p>The date and time the message shall be broadcasted in UTC in XML dateTime format.</p> <p>When this element is not available, immediate start is assumed.</p>

### 7.3.3 CBEM\_CBS\_Geotargeting\_Info Segment Element Definition

The following table contains the definition of the elements of the CBEM\_CBS\_Geotargeting\_Info segment:

**Table 4: CBEM\_CBS\_Geotargeting\_Info Segment Element Definition**

CBEM ELEMENT	MANDATORY/ OPTIONAL/ CONDITIONAL	CBEM DEFINITION
CBEM_CBS_Geotargeting_Info	C	<p>Identifies the segment with elements described in the following rows of this table.</p> <ol style="list-style-type: none"> <li>(1) Surrounds CBEM_CBS_Geotargeting_Info segment sub-elements.</li> <li>(2) Multiple instances are permitted within a single &lt;CBEM_CBS_Message_Info&gt; in which case the broadcast area is the union of all the included &lt;CBEM_CBS_Geotargeting_Info&gt; blocks.</li> <li>(3) Required for a CBEM_message_type of CBS Request.</li> <li>(4) At least one of the &lt;CBEM_geocode&gt;, &lt;CBEM_polygon&gt;, &lt;CBEM_circle&gt;, or &lt;CBEM_gnis&gt; elements must be included. If multiple &lt;CBEM_geocode&gt; elements are included, the area described by this &lt;CBEM_CBS_Geotargeting_Info&gt; is the union of the &lt;CBEM_geocode&gt; elements. Optionally, a CMSP may use the &lt;CBEM_geocode&gt;, the &lt;CBEM_gnis&gt;, the &lt;CBEM_polygon&gt;, and/or the &lt;CBEM_circle&gt; elements, depending on the targeting policies of the CMSP. The CMSP targeting policies are beyond the scope of this Standard.</li> </ol>
CBEM_geocode_type	C	<p>Required if CBEM_geocode element is included.</p> <p>Defines the type of encoding for the associated CBEM_geocode element.</p> <p>Code Values:</p> <ul style="list-style-type: none"> <li>"<b>SAME</b>" - NOAA National Weather Service (NWS) Specific Area Message Encoding (SAME) code.</li> <li>"<b>FIPS</b>" - Federal Information Processing Standards (FIPS) code.</li> <li>"<b>ZIP</b>" - U. S. Postal Service ZIP code.</li> <li>"<b>Geocode Area ID</b>" - Usage defined by mutual agreement between CBE and CBC.</li> </ul>
CBEM_geocode	C	<p>Required if CBEM_geocode_type element is included.</p> <p>The geographic code delineating the Cell Broadcast Area using the encoding type as defined in the CBEM_geocode_type element.</p> <p>Geocode values for a geocode type of <b>FIPS</b> are defined in FIPS Publication 6-4 [Ref 4] and is available online at &lt; <a href="http://www.itl.nist.gov/fipspubs/index.htm">http://www.itl.nist.gov/fipspubs/index.htm</a> &gt;.</p> <p>Geocode values for a geocode type of <b>SAME</b> are defined at &lt; <a href="http://www.nws.noaa.gov/nwr/indexnw.htm#sametable">http://www.nws.noaa.gov/nwr/indexnw.htm#sametable</a> &gt;.</p> <p>Values for a geocode type of <b>ZIP</b> are defined at &lt; <a href="http://zip4.usps.com">http://zip4.usps.com</a> &gt;.</p> <p>Values for geocode type of <b>Geocode Area ID</b> are defined by mutual agreement between CBE and CBC.</p>

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CBEM ELEMENT	MANDATORY/ OPTIONAL/ CONDITIONAL	CBEM DEFINITION
CBEM_polygon	C	<p>The paired values of points defining a polygon that delineates the Cell Broadcast Area.</p> <p>Code Values: The code values of the geographic polygon are represented by a whitespace-delimited list of WGS 84 [Ref 5] coordinate pairs.</p> <p>The first and last pairs of coordinates must be the same.</p> <p>It is recommended that the maximum number of coordinate pairs be limited to 100.</p>
CBEM_circle	C	<p>The paired values of a point and radius delineating the Cell Broadcast Area.</p> <p>Code Values: The circular area is represented by a central point given as a WGS- 84 [Ref 5] coordinates pair followed by a space character and a radius value in kilometers.</p>
CBEM_gnis	C	<p>This value is the geographic code delineating the Cell Broadcast Area using the U.S.G.S. Geographic Names Information System (GNIS) code as defined at <a href="http://geonames.usgs.gov">http://geonames.usgs.gov</a>.</p>

#### 7.4 XML Definition of CBEM Message

The following is the CBEM XML scheme definition:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<schema xmlns = "http://www.w3.org/2001/XMLSchema"
  targetNamespace = "cbem:1.0"
  xmlns:cbem = "cbem:1.0"
  xmlns:xs = "http://www.w3.org/2001/XMLSchema"
  elementFormDefault = "qualified"
  attributeFormDefault = "unqualified">
  <element name = "CBEM_CBS_Request"/>
  <annotation>
    <documentation>CBEM CBS Request (version 1.0)</documentation>
  </annotation>
  <complexType>
    <sequence>
      <element name = "CBEM_protocol_version" type = "string"/>
      <element name = "CBEM_sender_id" type = "anyURI"/>
      <element name = "CBEM_message_number" type = "string"/>
      <element name = "CBEM_referenced_message_number" type = "string"
        minOccurs = "0"/>
      <element name = "CBEM_message_type">
        <simpleType>
          <restriction base = "string">
            <enumeration value = "CBS Request"/>
            <enumeration value = "CBS Update Request"/>
            <enumeration value = "CBS Cancel Request"/>
            <enumeration value = "Ack"/>
            <enumeration value = "Error"/>
            <enumeration value = "Transmission Control - Cease"/>
            <enumeration value = "Transmission Control - Resume"/>
          </restriction>
        </simpleType>
      </element>
    </sequence>
  </complexType>
</schema>
```

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```
<element name = "CBEM_CBS_message_id" type = "string" minOccurs = "0"/>
<element name = "CBEM_response_code" type = "string" minOccurs = "0"
  maxOccurs = "unbounded"/>
<element name = "CBEM_response_description" type = "string" minOccurs = "0"
  maxOccurs = "unbounded"/>
<element name = "CBEM_CBC_Message_Info" minOccurs = "0">
  <complexType>
    <sequence>
      <element name = "CBEM_data_coding_scheme">
        <simpleType>
          <restriction base = "string">
            <enumeration value = "GSM_7_Bit_Coding"/>
            <enumeration value = "Class_0_GSM_7_Bit_Coding"/>
            <enumeration value = "Class_0_UCS2_character_set"/>
            <enumeration value = "Class_1_UCS2_character_set"/>
            <enumeration value = "Binary"/>
          </restriction>
        </simpleType>
      </element>
      <element name = "CBEM_language" minOccurs = "0">
        <simpleType>
          <restriction base = "string">
            <enumeration value = "English"/>
            <enumeration value = "Spanish"/>
            <enumeration value = "French"/>
            <enumeration value = "German"/>
            <enumeration value = "Italian"/>
            <enumeration value = "Dutch"/>
            <enumeration value = "Swedish"/>
            <enumeration value = "Danish"/>
            <enumeration value = "Portuguese"/>
            <enumeration value = "Finnish"/>
            <enumeration value = "Norwegian"/>
            <enumeration value = "Greek"/>
            <enumeration value = "Turkish"/>
            <enumeration value = "Hungarian"/>
            <enumeration value = "Polish"/>
            <enumeration value = "Czech"/>
            <enumeration value = "Hebrew"/>
            <enumeration value = "Arabic"/>
            <enumeration value = "Russian"/>
            <enumeration value = "Icelandic"/>
          </restriction>
        </simpleType>
      </element>
      <element name = "CBEM_CBS_broadcast_text" type = "string"/>
      <element name = "CBEM_repetition_period" type = "hexBinary"/>
      <element name = "CBEM_number_of_broadcasts_requested"
        type = "hexBinary"/>
      <element name = "CBEM_displaymode" type = "hexBinary"
        minOccurs = "0"/>
      <element name = "CBEM_start_date_time" type = "dateTime"
        minOccurs = "0"/>
      <element name = "CBEM_CBS_Geotargeting_Info" minOccurs = "0"
        maxOccurs = "unbounded">
        <complexType>
          <sequence>
            <element name = "CBEM_geocode_type">
              <simpleType>
                <restriction base = "string">
                  <enumeration value = "SAME"/>
                  <enumeration value = "FIPS"/>
                  <enumeration value = "ZIP"/>
                  <enumeration value = "Geocode Area ID"/>
                </restriction>
              </simpleType>
            </element>
          </sequence>
        </complexType>
      </element>
    </sequence>
  </complexType>
</element>
```

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```

</element>
<element name = "CBEM_geocode" type= "string"
  maxOccurs = "unbounded"/>
<element name = "CBEM_polygon" type = "string"
  minOccurs = "0" maxOccurs = "unbounded"/>
<element name = "CBEM_circle" type = "string"
  minOccurs = "0" maxOccurs = "unbounded"/>
<element name = "CBEM_gnis" type = "string"
  minOccurs = "0" maxOccurs = "unbounded"/>
</sequence>
</complexType>
</complexType>
</element>
</sequence>
</complexType>
</element>
<element name = "valueName" type = "string"/>
<element name = "value" type = "string"/>
</schema>

```

### 7.5 Definition of CBEM Response Codes

The following table defines the response codes and the response descriptions that may be returned from the CBC to the CBE in the CBEM\_response\_code and CBEM\_response\_description elements in response to a message received via the CBE to CBC interface:

**Table 5: Definition of CBEM Response Codes**

RESPONSE CODE	RESPONSE DESCRIPTION INCLUDED IN CBEM_RESPONSE_DESCRIPTION ELEMENT	NOTES
100	invalid-sender-id	The sender identifier is not valid.
101	protocol -version-not-supported	The CBE/CBC does not support the indicated protocol version.
102	server-error	General error in the CBE/CBC server.
103	invalid-format	The received XML has an invalid format.
104	invalid-element XXX	XXX replaced with the name of the invalid element.
105	missing-element XXX	XXX replaced with name of missing element.
106	operation-not-allowed	The requested operation is not allowed.
107	missing-geo-targeting-area	No geo-targeting information element provided in the CBEM geo-targeting segment.

## 8 CBEM MESSAGE TYPES & EXAMPLES

This clause describes the messages types of the CBE to CBC Messages. The description for each message type includes the message elements, message XML schema, and example XML message. The following message types are described in this clause:

- ◆ CBE To CBC Initial Request Message
- ◆ CBE To CBC Update Request Message
- ◆ CBE To CBC Cancel Request Message
- ◆ Acknowledgement Response
- ◆ Error Response
- ◆ CBC to CBE Transmission Control - Cease Message
- ◆ CBC to CBE Transmission Control - Resume Message

### 8.1 CBE to CBC Initial Request Message

A CBE to CBC Initial Request Message shall consist of a CBEM message containing one CBEM\_CBS\_Request segment, one CBEM\_CBS\_Message\_Info segment, and one or more CBEM\_CBS\_Geotargeting\_Info segments.

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Request segment for an initial request message from the CBE to the CBC:

**Table 6: Elements of CBEM\_CBS\_Request Segment for CBE to CBC Initial Request Message**

CBEM ELEMENT	VALUE
CBEM_protocol_version	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_sender_id	Identifies the CBE which initiated the CBEM message.
CBEM_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_message_type	Value of "CBS Request".
CBEM_CBS_message_id	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Message\_Info segment for an initial request message from the CBE to the CBC:

**Table 7: Elements of CBEM\_CBS\_Message\_Info Segment for CBE to CBC Initial Request Message**

CBEM ELEMENT	VALUE
CBEM_data_coding_scheme	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition of 7.3.2, CBEM_CBS_Message_Info Segment Element Definition.</i>
CBEM_language	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition of 7.3.2, CBEM_CBS_Message_Info Segment Element Definition.</i>
CBEM_CBS_broadcast_text	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition of 7.3.2, CBEM_CBS_Message_Info Segment Element Definition.</i>
CBEM_repetition_period	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition of 7.3.2, CBEM_CBS_Message_Info Segment Element Definition.</i>
CBEM_number_of_broadcasts_requested	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition of 7.3.2, CBEM_CBS_Message_Info Segment Element Definition.</i>
CBEM_displaymode	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition of 7.3.2, CBEM_CBS_Message_Info Segment Element Definition.</i>
CBEM_start_date_time	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition of 7.3.2, CBEM_CBS_Message_Info Segment Element Definition.</i>

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Geotargeting\_Info segment for an initial request message from the CBE to the CBC:

**Table 8: Elements of CBEM\_CBS\_Geotargeting\_Info Segment for CBE to CBC Initial Request Message**

CBEM ELEMENT	VALUE
CBEM_geocode_type	Per Table 4: <i>CBEM_CBS_Geotargeting_Info Segment Element Definition of 7.3.3, CBEM_CBS_Geotargeting_Info Segment Element Definition.</i>
CBEM_geocode	Per Table 4: <i>CBEM_CBS_Geotargeting_Info Segment Element Definition of 7.3.3, CBEM_CBS_Geotargeting_Info Segment Element Definition.</i>
CBEM_polygon	Per Table 4: <i>CBEM_CBS_Geotargeting_Info Segment Element Definition of 7.3.3, CBEM_CBS_Geotargeting_Info Segment Element Definition.</i>
CBEM_circle	Per Table 4: <i>CBEM_CBS_Geotargeting_Info Segment Element Definition of 7.3.3, CBEM_CBS_Geotargeting_Info Segment Element Definition.</i>
CBEM_gnis	Per Table 4: <i>CBEM_CBS_Geotargeting_Info Segment Element Definition of 7.3.3, CBEM_CBS_Geotargeting_Info Segment Element Definition.</i>

The following is an example initial request message from the CBE to the CBC in XML format:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CBEM_CBS_Request xmlns = "urn:xxx:xxx:xx:xxx:cbem:1.0">
  <CBEM_protocol_version>1.0</CBEM_protocol_version>
  <CBEM_sender_id>http://att_cmstp_gateway.com</CBEM_sender_id>
  <CBEM_message_number>ATT-CMSP-Gateway-2008-1056</CBEM_message_number>
  <CBEM_message_type>CBS Request</CBEM_message_type>
  <CBEM_CBS_message_id>4373</CBEM_CBS_message_id>
  <CBEM_CBS_Message_Info>
    <CBEM_data_coding_scheme>GSM_7_Bit_Coding</CBEM_data_coding_scheme>
    <CBEM_language>English</CBEM_language>
```

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```

    <CBEM_CBS_broadcast_text>Severe Weather Warning in this area until 4:15pm MST
NWS</CBEM_CBS_broadcast_text>
    <CBEM_repetition_period>111110100</CBEM_repetition_period>
    <CBEM_number_of_broadcasts_requested>110010</CBEM_number_of_broadcasts_requested>
    <CBEM_displaymode>0</CBEM_displaymode>
    <CBEM_start_date_time>2009-07-09T18:35:00-07:00</CBEM_start_date_time>
    <CBEM_CBS_Geotargeting_Info>
      <CBEM_geocode_type>FIPS</CBEM_geocode_type>
      <CBEM_geocode>04005</CBEM_geocode>
    </CBEM_CBS_Geotargeting_Info>
  </CBEM_CBC_Message_Info>
</CBEM_CBS_Request>

```

### 8.2 CBE to CBC Update Request Message

A CBE to CBC Update Request Message shall consist of a CBEM message containing one CBEM\_CBS\_Request segment and one CBEM\_CBS\_Message\_Info segment.

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Request segment for an update request message from the CBEM to the CBC:

**Table 9: Elements of CBEM\_CBS\_Request Segment for CBE to CBC Update Request Message**

CBEM ELEMENT	VALUE
CBEM_protocol_version	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_sender_id	Identifies the CBE which initiated the CBEM message.
CBEM_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_referenced_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> . Specifies the number of the message to be updated.
CBEM_message_type	Value of "CBS Update Request".

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Message\_Info segment for an update request message from the CBE to the CBC:

**Table 10: Elements of CBEM\_CBS\_Message\_Info Segment for CBE to CBC Update Request Message**

CBEM ELEMENT	VALUE
CBEM_data_coding_scheme	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition</i> of 7.3.2, <i>CBEM_CBS_Message_Info Segment Element Definition</i> .
CBEM_language	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition</i> of 7.3.2, <i>CBEM_CBS_Message_Info Segment Element Definition</i> .
CBEM_CBS_broadcast_text	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition</i> of 7.3.2, <i>CBEM_CBS_Message_Info Segment Element Definition</i> .
CBEM_repetition_period	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition</i> of 7.3.2, <i>CBEM_CBS_Message_Info Segment Element Definition</i> .
CBEM_number_of_broadcasts_requested	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition</i> of 7.3.2, <i>CBEM_CBS_Message_Info Segment Element Definition</i> .
CBEM_displaymode	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition</i> of 7.3.2, <i>CBEM_CBS_Message_Info Segment Element Definition</i> .
CBEM_start_date_time	Per Table 3: <i>CBEM_CBS_Message_Info Segment Element Definition</i> of 7.3.2, <i>CBEM_CBS_Message_Info Segment Element Definition</i> .

The following is an example update message from the CBE to the CBC in XML format:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CBEM_CBS_Request xmlns = "urn:xxx:xxx:xx:xxx:cbem:1.0">
  <CBEM_protocol_version>1.0</CBEM_protocol_version>
  <CBEM_message_number>ATT-CMSP-Gateway-2008-1087</CBEM_message_number>
  <CBEM_referenced_message_number>ATT-CMSP-Gateway-2008-1056</CBEM_referenced_message_
number>
  <CBEM_sender_id>http://att_cmsp_gateway.com</CBEM_sender_id>
  <CBEM_message_type>CBS Update Request</CBEM_message_type>
  <CBEM_CBS_Message_Info>
    <CBEM_data_coding_scheme>GSM_7_Bit_Coding</CBEM_data_coding_scheme>
    <CBEM_language>English</CBEM_language>
    <CBEM_CBS_broadcast_text>Severe Weather Warning in this area until 7:15pm MST NWS</
CBEM_CBS_broadcast_text>
    <CBEM_repetition_period>111110100</CBEM_repetition_period>
    <CBEM_number_of_broadcasts_requested>110010</CBEM_number_of_broadcasts_requested>
    <CBEM_displaymode>0</CBEM_displaymode>
    <CBEM_start_date_time>2009-07-09T18:35:00-07:00</CBEM_start_date_time>
  </CBEM_CBS_Message_Info>
</CBEM_CBS_Request>
```

### 8.3 CBE to CBC Cancel Request Message

A CBE to CBC Cancel Request Message shall consist of a CBEM message containing one CBEM\_CBS\_Request segment.

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Request segment:

**Table 11: Elements of CBEM\_CBS\_Request Segment for CBE to CBC Cancel Request Message**

CBEM ELEMENT	VALUE
CBEM_protocol_version	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_sender_id	Identifies the CBE which initiated the CBEM message.
CBEM_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_referenced_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> . Specifies the number of the message to be cancelled.
CBEM_message_type	Value of "CBS Cancel".
CBEM_CBS_message_id	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .

The following is an example cancel message from the CBE to the CBC in XML format:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CBEM_CBS_Request xmlns = "urn:xxx:xxx:xx:xxx:cbem:1.0">
  <CBEM_protocol_version>1.0</CBEM_protocol_version>
  <CBEM_sender_id>http://att_cmsp_gateway.com</CBEM_sender_id>
  <CBEM_message_type>CBS Cancel</CBEM_message_type>
  <CBEM_CBS_message_id>4373</CBEM_CBS_message_id>
  <CBEM_message_number>ATT-CMSP-Gateway-2008-1088</CBEM_message_number>
  <CBEM_referenced_message_number>ATT-CMSP-Gateway-2008-1056</CBEM_referenced_message_
number>
</CBEM_CBS_Request>
```

#### 8.4 Acknowledgement Response

An acknowledgement message sent on the CBEM Message interface shall consist of a CBEM message containing one CBEM\_CBS\_Request segment.

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Request segment:

**Table 12: Elements of CBEM\_CBS\_Request Segment for Acknowledgement Response Message**

CBEM ELEMENT	VALUE
CBEM_protocol_version	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_sender_id	Identifies the entity which initiated the CBEM message.
CBEM_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_referenced_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> . Specifies the number of the message to be acknowledged.
CBEM_message_type	Value of "Ack".

The following is an example acknowledgement response message from the CBC to the CBE in XML format:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CBEM_CBS_Request xmlns = "urn:xxx:xxx:xx:xxx:cbem:1.0">
  <CBEM_protocol_version>1.0</CBEM_protocol_version>
  <CBEM_sender_id>http://att_cell_broadcast_center.com</CBEM_sender_id>
  <CBEM_message_type>Ack</CBEM_message_type>
  <CBEM_message_number>ATT-CBC-2008-1095</CBEM_message_number>
  <CBEM_referenced_message_number>ATT-CMSP-Gateway-2008-1056</CBEM_referenced_message_
number>
</CBEM_CBS_Request>
```

### 8.5 Error Response

An error response message sent from on the CBEM Message interface shall consist of a CBEM message containing one CBEM\_CBS\_Request segment.

The following table summarizes the required CBEM elements of the CBEM\_CBS\_Request segment:

**Table 13: Elements of CBEM\_CBS\_Request Segment for Error Response Message**

CBEM ELEMENT	VALUE
CBEM_protocol_version	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_sender_id	Identifies the entity which initiated the CBEM message.
CBEM_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_referenced_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> . Specifies the number of the message containing the error.
CBEM_message_type	Value of "Error".
CBEM_response_code	Per Table 5: <i>Definition of CBEM Response Codes</i> of 7.5, <i>Definition of CBEM Response Codes</i>
CBEM_response_description	Per Table 5: <i>Definition of CBEM Response Codes</i> of 7.5, <i>Definition of CBEM Response Codes</i>

The following is an example error response message from the CBC to the CBE in XML format:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CBEM_CBS_Request xmlns = "urn:xxx:xxx:xx:xxx:cbem:1.0">
  <CBEM_protocol_version>1.0</CBEM_protocol_version>
  <CBEM_sender_id>http://att_cell_broadcast_center.com</CBEM_sender_id>
  <CBEM_message_type>Error</CBEM_message_type>
  <CBEM_message_number>ATT-CMSP-Gateway-2008-1097</CBEM_message_number>
  <CBEM_referenced_message_number>ATT-CMSP-Gateway-2008-1056</CBEM_referenced_message_
number>
  <CBEM_response_code>103</CBEM_response_code>
  <CBEM_response_description>invalid-format</CBEM_response_description>
</CBEM_CBS_Request>
```

### 8.6 CBC to CBE Transmission Control – Cease Message

The CBC may have a mechanism to inform the CBE of maintenance or other error situations during which period the CBC cannot receive any messages from the CBE.

Mechanism for requesting this action may include:

- ◆ Sending a Transmission Control - Cease message as a result of an error or other condition at the CBC.
- ◆ CBC may request transmissions be ceased via a maintenance command on the CBC or internal error processing, whereby the CBC shall have the capability to initiate a message to the CBE to cease transmissions.

A Transmission Control - Cease message sent from the CBC to the CBE shall consist of a CBEM message containing one CBEM\_CBS\_Request segment. The following table summarizes the required CBEM elements of the CBEM\_CBS\_Request segment:

**Table 14: Elements of CBEM\_CBS\_Request Segment for Transmission Control - Cease Message**

CBEM ELEMENT	VALUE
CBEM_protocol_version	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition of 7.3.1, CBEM_CBS_Request Segment Element Definition.</i>
CBEM_sender_id	Identifies the CBC which initiated the CBEM message.
CBEM_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition of 7.3.1, CBEM_CBS_Request Segment Element Definition.</i>
CBEM_message_type	Value of "Transmission Control - Cease".

The following is an example Transmission Control - Cease message from the CBC to the CBE in XML format:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CMA_CBS_Request xmlns = "urn:xxx:xxx:xx:xxx:cmad:1.0">
  <CBEM_protocol_version>1.0</CBEM_protocol_version>
  <CBEM_sender_id>http://att_cell_broadcast_center.com</CBEM_sender_id>
  <CBEM_message_type>Transmission Control - Cease</CBEM_message_type>
  <CBEM_message_number>ATT-CMSP-Gateway-2008-1077</CBEM_message_number>
</CBEM_CBS_Request>
```

Upon receipt of the CBC-initiated Transmission Control - Cease message, the CBE shall validate the received transmission control message and shall send a CBEM acknowledgement (see 8.4, *Acknowledgement Response*) back to the CBC. The CBC may chose to ignore the Acknowledgement Message for a Transmission Control - Cease request.

### 8.7 CBC to CBE Transmission Control – Resume Message

If the optional transmission control mechanism is supported, once the maintenance or error condition is cleared, the CBC shall inform the CBE that transmission of messages may resume using a Transmission Control - Resume message.

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A Transmission Control - Resume message sent from the CBC to the CBE shall consist of a CBEM message containing one CBEM\_CBS\_Request segment. The following table summarizes the required CBEM elements of the CBEM\_CBS\_Request segment:

**Table 15: Elements of CBEM\_CBS\_Request Segment for Transmission Control - Resume Message**

CBEM ELEMENT	VALUE
CBEM_protocol_version	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_sender_id	Identifies the CBC which initiated the CBEM message.
CBEM_message_number	Per Table 2: <i>CBEM_CBS_Request Segment Element Definition</i> of 7.3.1, <i>CBEM_CBS_Request Segment Element Definition</i> .
CBEM_message_type	Value of "Transmission Control - Resume".

The following is an example Transmission Control - Resume message from the CBC to the CBE in XML format:

```
<?xml version = "1.0" encoding = "UTF-8"?>
<CMA_CBS_Request xmlns = "urn:xxx:xxx:xx:xxx:cmad:1.0">
  <CBEM_protocol_version>1.0</CBEM_protocol_version>
  <CBEM_sender_id>http://att_cell_broadcast_center.com</CBEM_sender_id>
  <CBEM_message_type>Transmission Control - Resume</CBEM_message_type>
  <CBEM_message_number>ATT-CMSP-Gateway-2008-1078</CBEM_message_number>
</CBEM_CBS_Request>
```

Upon receipt of the CBC-initiated Transmission Control - Resume message, the CBE shall validate the received transmission control message and shall send a CBEM acknowledgement (see 8.4, *Acknowledgement Response*) back to the CBC.