

# ANSI/CEA Standard

## Emergency Alert Messaging for Cable

ANSI J-STD-42-B  
(CEA-814-B)

October 2013



**CEA**  
Consumer Electronics Association®  
[www.CE.org](http://www.CE.org)

## NOTICE

Consumer Electronics Association (CEA<sup>®</sup>) Standards, Bulletins and other technical publications are designed to serve the public interest through eliminating misunderstandings between manufacturers and purchasers, facilitating interchangeability and improvement of products, and assisting the purchaser in selecting and obtaining with minimum delay the proper product for his particular need. Existence of such Standards, Bulletins and other technical publications shall not in any respect preclude any member or nonmember of CEA from manufacturing or selling products not conforming to such Standards, Bulletins or other technical publications, nor shall the existence of such Standards, Bulletins and other technical publications preclude their voluntary use by those other than CEA members, whether the standard is to be used either domestically or internationally.

Standards, Bulletins and other technical publications are adopted by CEA in accordance with the American National Standards Institute (ANSI) patent policy. By such action, CEA does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the Standard, Bulletin or other technical publication.

This document does not purport to address all safety problems associated with its use or all applicable regulatory requirements. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations before its use.

This document is copyrighted by the Consumer Electronics Association (CEA<sup>®</sup>) and may not be reproduced, in whole or part, without written permission. Federal copyright law prohibits unauthorized reproduction of this document by any means. Organizations may obtain permission to reproduce a limited number of copies by entering into a license agreement. Requests to reproduce text, data, charts, figures or other material should be made to CEA.

(Formulated under the cognizance of the CEA **R4.3 Television Data Systems Subcommittee.**)

Published by  
©CONSUMER ELECTRONICS ASSOCIATION 2013  
Technology & Standards Department  
[www.CE.org](http://www.CE.org)

All rights reserved

## FOREWORD

This standard was originally developed under the auspices of the NCTA/CEA Digital Standards Subcommittee.

J-STD-042-B supersedes J-STD-042-A.

NOTE—This standard was processed within SCTE as SCTE 18:2013. This standard was processed within CEA as CEA-814-B.

(This page intentionally left blank.)

**CONTENTS**

**FOREWORD** ..... i

**1 Scope**..... 1

**2 Overview** ..... 1

**3 References**..... 2

**3.1 Normative References**..... 2

        3.1.1 Normative Reference List ..... 2

        3.1.2 Normative Reference Acquisition ..... 2

**3.2 Informative References** ..... 3

        3.2.1 Informative Reference List..... 3

        3.2.2 Informative Reference Acquisition ..... 3

**4 Compliance Notation** ..... 3

**5 Emergency Alert Message (Normative)** ..... 3

**5.1 Descriptors** ..... 13

        5.1.1 In-Band Details Channel Descriptor ..... 13

        5.1.2 In-Band Exception Channels Descriptor ..... 14

        5.1.3 Audio File Descriptor ..... 15

            5.1.3.1 Audio Format Constraints ..... 17

        5.1.4 Emergency Alert Metadata Descriptor ..... 17

        5.1.5 User Private Descriptors ..... 17

**6 Transmission Requirements (Normative)**..... 17

**7 Emergency Alert Message Processing for Receiving Devices (Normative)** ..... 18

    7.1 General Requirements ..... 18

    7.2 Overlapping Message Processing ..... 19

    7.3 Optional EAS Event ID Processing ..... 19

    7.4 Exception Processing ..... 20

    7.5 Alert Priority Processing ..... 20

    7.6 Details Channel and Audio ..... 22

    7.7 Text Processing ..... 22

    7.8 Optional Processing ..... 23

**8 Cable System Operational Issues (Informative)** ..... 23

    8.1 Overlapping Messages Are Allowed ..... 23

    8.2 The Emergency Alert Message May be Repeated to Ensure its Reception ..... 23

    8.3 Digital Transport Streams with Unscrambled Services ..... 23

    8.4 Tuning to the Details Channel ..... 23

**9 Optional Processing (Informative)** ..... 23

    9.1 Alert Originator Code and Event Code ..... 24

    9.2 Alert Event Start Time and Duration ..... 24

    9.3 Alert Location Information ..... 24

**10 Time Shifted Emergency Alerts (Informative)** ..... 24

**Annex A Receiving Device Emergency Alert Message Processing (Informative)** ..... 25

**Annex B Overlapping Message Examples (Informative)** ..... 29

    B.1 Example #1 - EAN Overlapping HWW ..... 29

    B.2 Example #2 - EAN Terminated by EAT ..... 30

    B.3 Example #3 – CAE Aborted by an Overlapping pseudo Event ..... 30

## Figures

Figure 1 Emergency Alert Message Example Processing Flow Diagram .....	25
Figure 2 Example #1 EAS Event Timeline .....	29
Figure 3 Example #2 EAS Event Timeline .....	30
Figure 4 Example #3 EAS Event Timeline .....	31

## Tables

Table 1 Emergency Alert Message Format.....	5
Table 2 EAS FCC-Defined Originator Code (Informative) .....	7
Table 3 Example EAS Event Codes.....	8
Table 4 Alert Priority .....	10
Table 5 County Subdivision Coding .....	12
Table 6 Descriptor Tags .....	13
Table 7 Bit Stream Syntax for the In-Band Details Channel Descriptor.....	13
Table 8 Bit Stream Syntax for the In-Band Exception Channels Descriptor .....	14
Table 9 Bit-stream Syntax for Audio File Descriptor.....	15
Table 10 Audio Format Coding .....	16
Table 11 Audio Source Coding .....	16
Table 12 Audio Format Constraints .....	17
Table 13 User Private Descriptor Format .....	17
Table 14 Parameters for Example EAS Event .....	29
Table 15 Parameters for Example #2 .....	30
Table 16 Parameters for Example #3 .....	31

## Emergency Alert Messaging for Cable

### 1 Scope

This standard defines an Emergency Alert signaling method for use by cable TV systems to signal emergencies to digital receiving devices that are offered for retail sale. Such devices include digital set-top boxes that are sold to consumers at retail, digital TV receivers, and digital video recorders. The Emergency Alert signaling (EAS) scheme defined in this standard allows a cable operator to disseminate emergency alert information related to state and local-level emergencies and warnings in an efficient way, while minimizing disruption to programming. While it is possible for a cable operator to comply with EAS requirements by simply replacing the source signal for all programs with an emergency information channel, such switching is disruptive to viewing, is overly intrusive for many kinds of local warnings and is overly-complex for the cable operator to implement in a digital cable environment where each transport stream may carry many programs that would have to be individually interrupted. Based on the priority level of the alert, the Emergency Alert message may instruct the receiving device to force-tune to a designated emergency broadcast channel.

Section 5 of this standard defines the syntax of the Emergency Alert message and related descriptors. This message is in the form of a standard MPEG-2 table and, when necessary, is delivered in-band on cable transport streams that carry one or more programs in-the-clear. Receiving devices without Point Of Deployment (POD)<sup>1</sup> modules in place process such messages in accordance with requirements described in Section 7 of this standard. For programs that are scrambled on a cable system, the Emergency Alert message is delivered to the POD module using the cable system's forward data channel. The POD module processes the message as necessary and delivers it to the receiving device out-of-band. As used in this standard, "out-of-band" refers to the Extended Channel interface defined in ANSI/SCTE 28 [4]. As delivered to the receiving device by the POD module, the Emergency Alert message is in the form of an MPEG-2 table as defined in Section 5 of this standard. The receiving device then processes the message in accordance with Section 7 of this standard.

The behavior of receiving devices in response to user actions, such as channel changes or accessing on-screen displays, where such user actions relate to acquisition and processing of Emergency Alert messages, is out of scope of this standard.

### 2 Overview

Emergency message support for receiving devices involves the following elements:

- a) A signaling scheme to identify the presence of an Emergency Alert.
- b) The start time and expected duration of the alert event.<sup>2</sup>
- c) A textual description of the emergency alert.
- d) An indication of the availability and location of the "details" channel, an audio/video service pertaining to the alert.
- e) An indication whether the event is of sufficient importance that tuning to the details channel shall be done unconditionally.
- f) A pointer to an optional audio channel that can be used to replace the audio of the current service for the duration of the Emergency Alert message.

This standard defines a `cable_emergency_alert()` message in the form of an MPEG-2 `private_section()` (per MPEG-2 Systems [2] Table 2-30), compatible with MPEG-2 transport.

---

<sup>1</sup> The Point Of Deployment module is also known as a CableCARD™ device.

<sup>2</sup> For example, a flood warning might start at 4pm and last for 8 hours.