



INTERNATIONAL DEAF EMERGENCY

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WHERE DOES THE OPEN PUBLIC-WARNING STACK STOP BEING OPEN?

International Deaf Emergency (IDE), October 2026.

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1. A phone buzzes once

When a Wireless Emergency Alert (WEA) reaches a phone in the United States, a Deaf person receives a vibration. Federal rules define one vibration cadence for every alert: a two-second vibration, then two one-second vibrations, with half-second pauses, the whole sequence played twice [4, §§10.520(d), 10.530(a)]. It is the same for a tornado, a missing child or a test. Like the two-tone sound a hearing person receives [4, §10.520], it does not say what the danger is or how serious.

The Federal Communications Commission (FCC) said as much in its 2026 Further Notice on alerting: "no information about the nature of the underlying emergency event is communicated during that time unless a subscriber accesses their device to read the text of the message" [8, para 83].

IDE's reply comments, filed on 8 October 2026, put it this way. For hearing users, "the signal is a doorbell and the message is a glance away". For a

Deaf person asleep with the phone face down, "the vibration is not a doorbell before the message; it is the only pre-attentive channel that exists" [21]. That is IDE's position, not a finding of this report.

This report does not ask whether one cadence is a defect or a deliberate floor, but a prior question. The words of an alert travel through infrastructure that is open in a strong sense. Where, on the way to the person, does that openness stop, and who is responsible for what lies beyond it?

2. What "open" means for a warning stack

The grant's goal statement asks where the open public-warning stack stops being open at the accessible, non-auditory rendering layer, "who maintains that layer and under what mandate, and where responsibility for it is absent, closed, or dispersed". We grade each layer by four questions: is the specification free to read, has it a named maintainer, does a law, rule or agreement oblige someone to keep it, and can anyone enter a public process to change it? The answers give the map's five labels (section 9):

- **Open**: an open standard, free to read, with a public change process;
- **Public**: infrastructure operated by a public body;
- **Reg**: specified in a published federal rule;
- **Vendor**: decided by a manufacturer or carrier, documented, if at all, in support pages or in specifications for sale;
- **Nobody**: no specifying document found in the sources this inquiry read.

"Open" here does not mean free to fork: a pattern that means "fire" on one device and "flood" on another means nothing. IDE's own Three Senses Alerting Standard is CC BY-ND 4.0: free to copy, not to modify, with a separate grant letting the FCC, the Federal Emergency Management Agency (FEMA) and standards bodies adapt it [23, §7]. Whether openness here should include the freedom to change it is left open.

Earlier work for this fund asked how public-interest infrastructure "can be made, maintained, and defended" [27], and how its maintenance holds up

when investment contracts [28]; this report puts that question to a warning layer.

3. The message layer is open

An alert in the United States starts with one of the "more than 1,600 federal, state, local, tribal and territorial alerting authorities" FEMA counts as using its Integrated Public Alert and Warning System (IPAWS) [3]. Its vendor software sends the alert to IPAWS-OPEN, FEMA's aggregator, which passes it to carriers, broadcasters and other disseminators [3; 8, para 41].

The format is an open standard. The alert is written in the Common Alerting Protocol (CAP), version 1.2, a standard of the OASIS standards consortium since 1 July 2010, maintained by its Emergency Management Technical Committee and free to read [1]. It has a <resource> element for a file such as a video, a <parameter> element for agreed named values, a Cancel message type and an AllClear response type [1, §3.2.1 to §3.2.3]. It says nothing about how a receiver should render an alert by vibration, light or sound.

The United States profile is open too. IPAWS uses a CAP profile published by the same OASIS committee on 13 October 2009, adding requirements such as an expiry time and an event code [2; 23, CAP annex §4].

The interface to IPAWS passes through an agreement. Developers who want to reach IPAWS-OPEN sign a Memorandum of Agreement with FEMA and then receive its interface design guidance, a certificate and an endpoint, free of charge [3]; we did not find the guidance posted publicly. IDE signed one on 25 August 2026, for the test environment [21].

The carrier link is regulated, and specified by industry. Under the Warning, Alert and Response Network (WARN) Act, carrier participation in WEA is voluntary, and carriers that participate must meet the Commission's technical requirements [7, para 2]. The gateway and cell broadcast interfaces are written by the Alliance for Telecommunications Industry Solutions (ATIS) [12; 13].

So the message layer is readable, maintained by named bodies and mandated by statute, rule and agreement. Whether guidance behind an agreement and interfaces written by an industry body count as "open" is named here, not judged. IDE presented the source side of this inquiry, in sign language, at the 2026 CAP Implementation Workshop on 8 October 2026 [25; 26].

4. Where the specifications stop the renderings

A Deaf or DeafBlind person relies on several renderings of an alert. For each, we asked who specifies it today.

Vibration. Specified in a federal rule: one cadence for every alert, reserved for alerts [4, §10.530(a), (b)]. The same rule lets a device offer to mute it [4, §10.530(c)].

Sound, for people with some hearing. Specified: a two-tone signal whose cadence the vibration also follows, which a device may let the user mute [4, §10.520(a) to (e)].

Light. Part 10 contains no requirement for a flash, a light cue or screen brightness; the words "light", "flash" and "visual" do not appear in its current text [4]. Light is decided by the phone. IDE's reply comments observe, as IDE's reading of the record, that no comment it reviewed in that round addressed photosensitivity or a limit on flashing [21].

What kind of danger, and how serious, without sound or text. No rule assigns hazard type or severity to a non-audible channel. The Further Notice asks about visual hazard symbols [8, paras 78 to 82; 9]. In its text "haptic" and "all-clear" do not appear, "vibration" appears once, and American Sign Language is mentioned only twice, as "ASL" in footnotes quoting commenters [8].

Graded non-audible signals do exist, in at least one vendor system. The United States Geological Survey (USGS) described to IDE on 17 September 2026, in correspondence IDE filed with its reply comments, how Android Earthquake Alerts grade them [21]. At the middle level, a prominent

continuous vibration; at the top level, a full-brightness screen, with the vibration switched off to spare the phone's sensors. USGS's own comments ask the Commission to "institute distinct attention signals and device behavior for alerts of different severity" [22].

Sign-language video for the type of alert. Specified, from 2028. An order of January 2025 by the FCC's Public Safety and Homeland Security Bureau (the Bureau) requires pre-scripted ASL templates for eighteen events [7, Appendix A, §10.480(f)] (section 6).

Sign language for the specific message. Not specified. Where a non-English template is shown, the English template follows it [7, Appendix A, §10.500(e)(3)], so the agency, the place and the time reach an ASL user as English text. The Bureau found fillable ASL templates "not technically feasible at this time" [7, para 31].

Sign-language video sent by the authority. CAP can already carry it, as a <resource> [1, §3.2.3]. No document we read says who must render it.

The all-clear. CAP can mark one [1]; an all-clear template "is still under consideration by the Bureau" [7, n.32], and IDE has asked the Bureau to adopt one [20].

Touch and braille for DeafBlind people. Not specified. The Further Notice quotes the National Federation of the Blind that a connected braille display "is unquestionably the most effective way to reach deafblind individuals" and asks whether Emergency Alert System (EAS) software could pass alerts to such devices; it proposes no rule for touch [8, para 95]. In the separate 911 video-calling proceeding, IDE's reply found "tactile", "haptic" and "vibration" in none of the attachment-bearing comments of that round [19].

Whether these renderings belong in one specification, several or none is left open.

5. Vendor behaviour

the operating systems and the industry specifications

Where the rules stop, the phone decides, and some of what it decides is described in public support pages. Google's Pixel help page lets the user turn alert vibration on or off and set a reminder interval, and says certain national alerts cannot be turned off in some countries, "like the United States" [16]. Apple's page says a government alert plays "a special sound that's similar to an alarm" and shows how to turn each type on or off; it does not mention vibration [17]. These pages describe a product and change at its maker's choice; they are not specifications anyone can hold the product to.

The specifications that do govern device behaviour are industry documents: J-STD-100, of ATIS and the Telecommunications Industry Association (2009), ATIS-0700036 for newer networks [14], and ATIS-0700006 for cell broadcast on GSM and UMTS, the second- and third-generation mobile networks [15]. J-STD-100 and ATIS-0700036 are offered for sale or by subscription [14]; we did not find the others posted openly. Unable to read their texts, we cannot say how much of a phone's emergency behaviour they fix and how much is left to each maker. The store's summary of ATIS-0700036 (version 3), read in an archived listing, says: "Implementation of the requirements contained within this specification is mobile device manufacturer dependent" [14].

So the layer that most directly decides what a Deaf person feels and sees has named maintainers, texts the public must buy or cannot find, and settings kept by each vendor under no public mandate.

6. One public body takes responsibility the WEA template programme

In one place a public body has specified, produced and kept an accessible rendering of an alert. On 8 January 2025 the Bureau adopted Report and Order DA 25-12 [7]. It requires participating carriers to support pre-scripted templates for eighteen events [7, para 1; Appendix A, §10.480(c)], in English and thirteen further written languages [7, Appendix A, §10.480(d)], and non-fillable ASL templates, signed by a Certified Deaf

Interpreter [7, paras 1, 31 to 33]. The amendments take effect on 12 June 2028 [10].

The order says who keeps the asset: "The Bureau maintains original recordings of the ASL templates and will work with Participating CMS Providers if certain technical aspects ... need to be modified" [7, n.104] (CMS: commercial mobile service). That is the only statement of maintenance for an accessible rendering that we found.

The set changes by petition to the Chief of the Bureau, which declined a fixed schedule for revisiting the languages supported and will instead monitor implementation and stakeholder needs [7, para 42]. IDE used that route: its ex parte letter of 14 September 2026 (a written presentation filed in the public record) asked that every new template get its ASL version at adoption and that a date be set to revisit fillable ASL [20]; these are requests, not decisions.

First, the FCC publishes the videos on a web page and its video channel [11]; we found no machine-readable list by which a developer could confirm which video is official for which template. IDE's own map of the eighteen videos once pointed at a 2024 demonstration set not meant for use, since corrected [23, wea-asl-templates.json]: without a registry, official asset and unofficial copy diverge easily. Second, a template video explains what an alert type means; it does not translate the message. Whether a pre-recorded explanation of a type is a rendering of the alert at all is left open.

7. Off the phone television, displays and relays

The same CAP message also reaches televisions and public displays, under their own accessibility rules. Emergency information given in the audio of a programme must be made accessible to people with hearing disabilities by closed captioning or another method of visual presentation [6, §79.2(b)(1)]. For EAS messages, television broadcasters and cable and satellite providers must transmit a visual message with the originator, the event, the location and the valid time, readable and in full at least once [5, §11.51(d)]. These rules specify text and say nothing about sign language, light or touch. The

2026 Further Notice asks where hazard symbols would sit on a television screen [8, paras 81 and 82]; it does not ask about a signed video.

IDE's record: in October 2026 a broadcaster designing a CAP overlay for linear television put questions to IDE. The answers became four surface rules in the Three Senses standard [23, §5, S1 to S4]: among them, a relay never rewrites the authority's text, and a light cue stays within the flash limit of the Web Content Accessibility Guidelines (WCAG) 2.3.1 and ITU-R BT.1702, from the International Telecommunication Union's radiocommunication sector. They record what one designer needed and could not find elsewhere, not rules anyone must follow. Who is responsible for a sign-language rendering on a screen nobody touches, the broadcaster, the maker of the EAS equipment or the alerting authority, is left open.

8. Trust at the receiver when verification fails

Since 2018 EAS participants have had to reject CAP alerts with invalid digital signatures [8, paras 43 and 44]. The 2026 Further Notice records that today EAS participants "are only required to reject EAS messages that include an invalid digital signature", proposes to close that gap, and asks whether there have been "any notable cases in which valid alerts have been erroneously delayed or rejected" [8, paras 41 to 44]. We found no document that says what a receiver must do instead, or what the person in the alert area should be told.

IDE's measurement, filed with its reply comments: from 20 August to 13 September 2026, twenty-five days, IDE's receiver held only one of the two intermediate certificates under which FEMA issues IPAWS device certificates, and twenty-six genuine alerts from twelve alerting authorities failed to chain. Every certificate was valid; the fault was at the receiving end, and FEMA confirmed in writing that two certificate authorities are in use [21].

Under the rule the filing describes, where the signature is sound and the failure lies in IDE's own trust material, the alert is delivered and recorded as unauthenticated with the reason. Where the signature is absent or

cryptographically invalid, the alert is held, recorded and raised to IDE's operators. The filing states that the marker shown to the recipient was still being built, and asks the Commission to say in the rule which failures require rejection, rather than answering every failure with the single word "reject" [21]. That is IDE's position.

The incident is small and IDE's own, but what a receiver does when trust fails is part of the same rendering layer, and no document we read assigns it. Whether a receiver should present an alert it cannot verify, and whose rule that should be, is left open.

9. The map from originator to person

Labels as in section 2; "Nobody" means no specifying document was found in the sources read, not that none exists.

#	Layer	Label	Citation
1	Alerting authority writes the alert	Public	FEMA IPAWS [3]
2	Origination software and interface guidance	Vendor, under FEMA agreement	FEMA IPAWS developers [3]
3	Message format	Open	CAP 1.2 [1]
4	United States profile of CAP	Open	IPAWS profile v1.0, OASIS CS01 [2]
5	Aggregation and authentication	Public	IPAWS-OPEN [3]; IDE reply [21]
6	Federal gateway to carrier	Reg, specified by industry	ATIS-0700037 [12]; DA 25-12 para 2 [7]
7	Carrier to cell broadcast	Vendor, specified by industry	ATIS-0700045 [13]; ATIS-0700006 [15]

#	Layer	Label	Citation
8	Device behaviour specification	Vendor, specified by industry, not free to read	J-STD-100, ATIS-0700036 [14]
9	Audio attention signal	Reg	47 CFR 10.520 [4]
10	Vibration	Reg, one cadence	47 CFR 10.530 [4]
11	Hazard type by touch or light	Nobody	10.530 [4]; FCC 26-38 paras 78 to 82 and 83 [8]
12	Severity without sound	Vendor where it exists	USGS to IDE, via IDE reply [21]; USGS [22]
13	Light, flash, brightness	Vendor / Nobody	Part 10 [4]; IDE reply [21]
14	Text on screen (90 and 360 characters)	Reg	47 CFR 10.430 [4]
15	ASL video for the alert type	Reg, FCC-kept asset, from 2028	10.480(f), n.104 [7]; 91 FR 2317 [10]
16	Sign language for the specific message	Nobody	10.500(e)(3), para 31 [7]
17	Signed video sent inside CAP	Open format, Nobody to render	CAP <resource> [1]
18	User settings	Vendor	Google [16]; Apple [17]
19	All-clear	Open format, Nobody to render	CAP [1]; DA 25-12 n.32 [7]
20	DeafBlind touch and braille	Nobody	FCC 26-38 [8]; IDE 911 reply [19]
21	Receiver when verification fails	Nobody	FCC 26-38 paras 41 to 44 [8]; IDE reply [21]
22	Television and displays	Reg for text, Vendor for the rest	47 CFR 79.2 [6], 11.51(d) [5]; FCC 26-38 paras 81 to 82 [8]
23	The person		"An alert is not what leaves the tower; an alert is what reaches

#	Layer	Label	Citation
			the person." [23, §1]

The message is open; the person is reached through layers that are mostly vendor-decided or unowned. Within the sources read, no document assigns responsibility in rows 11, 16, 17, 19, 20 and 21: absent, as far as the record shows. It is closed in rows 2, 7 and 8, where guidance sits behind an agreement or specifications are sold, and partly in row 6, an industry interface. It is dispersed in rows 12, 13, 18 and 22, among phone makers, operating-system vendors, broadcasters and equipment makers. Among the renderings, only row 15 has a named public keeper.

10. The questions this opens

This report maps terrain and ends with questions.

- **Who could maintain a non-audible attention vocabulary, and under what mandate?** IDE's August comments asked for a consensus standards process rather than adoption of "any draft vocabulary, including IDE's, as a final federal codebook" [18].
- **Should device-behaviour specifications for emergencies be free to read** (section 5)? Is maintenance by petition, with no fixed review schedule, enough (section 6)? Who owns the all-clear (section 4)?
- **Where do DeafBlind people sit** in rules that name sound, vibration, text and template video, and **who renders a signed video** an authority attaches to an alert?
- **What must a receiver do when it cannot verify a genuine alert,** and what should the person be told?

What merits follow-up

1. **A public reading of the device rules** (section 5). Who could obtain the specifications a phone follows in an emergency and summarise in public what they fix and leave to each maker?

2. **A registry and a review clock for the one kept asset** (section 6). The Bureau keeps the ASL recordings without a machine-readable list and changes the set by petition, with no fixed schedule. Is that enough for an asset carriers must support from 2028, and who should hold the list and the clock?
3. **A home for the all-clear, the attached video and the DeafBlind channel** (sections 3 and 4). No document we read assigns the first two a renderer, and the Further Notice proposes no rule for touch. Does each belong in the CAP profile, in a rule, or with a vendor?
4. **A record of what reaches Deaf viewers** (section 7). The nationwide EAS test through IPAWS on 17 November 2026, alternate date 3 December [24], tests television and radio, not phones. Who will record what Deaf viewers see that day?

Each of these is a question about maintenance, not about features: who keeps the last layer, and who answers when it is missing.

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