Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, DC 20554

In the Matter of	)	
Wireless Emergency Alerts	)	PS Docket No. 15-91
Amendment of Part 11 of the Commission's Rules Regarding the Emergency Alert System	)	PS Docket No. 15-94
Modernization of the Nation's Alerting Systems	)	PS Docket No. 25-224

COMMENTS OF INTERNATIONAL DEAF EMERGENCY

Table of Contents

I. Introduction and Interest of the Commenter

International Deaf Emergency (IDE) is a Deaf-led United States 501(c)(3) nonprofit organization, based in Silver Spring, Maryland, dedicated to emergency safety for Deaf, DeafBlind, and hard-of-hearing people. IDE is an international member of the World Federation of the Deaf and a member of the Reference Group on Inclusion of Persons with Disabilities in Humanitarian Action. Its founder is Deaf and a disaster risk reduction practitioner. IDE presented its alerting accessibility work at the World Federation of the Deaf 75th Anniversary Webinar on disaster risk reduction on August 17, 2026, published by WFD at https://wfdeaf.org/resources/webinar-disaster-risk-reduction-for-deaf-communities/.

IDE writes from practice, not only from principle. While building Deaflare, a Deaf-first emergency alerting application, IDE searched for the rules an accessible alert must follow on a phone: which vibration means which danger, how severity must be shown without color alone, what a DeafBlind user should be able to read by touch. IDE found no unified United States end-user presentation standard that specifies how emergency status, hazard family, severity, and protective action should be rendered across visual, tactile, and auditory channels. So IDE drafted one, the Three Senses Alerting Standard, and implemented the draft in a working application on unmodified consumer devices, exercising the exact channels this proceeding discusses: vibration patterns, screen flash, device light, symbols, plain-language action lines, and an audible tone.[1] The application receives the live FEMA IPAWS and National Weather Service public alert feeds in production, and on August 25, 2026, IDE signed a Memorandum of Agreement with FEMA's IPAWS Program Management Office for origination-side development in the IPAWS-OPEN test environment, so that accessibility, including American Sign Language video and machine-readable presentation metadata, can be attached to alerts at the source. Evaluation to date consists of structured multi-perspective design review across the sight, touch, and hearing channels and engineering testing on consumer devices. Structured usability testing with Deaf and DeafBlind participants through IDE's network is being organized. IDE will also invite blind and partially sighted participants as experts in auditory access to test whether sound rhythms allow accurate hazard family identification and to measure confusion between sound patterns. IDE expects to submit any completed, quality reviewed results in reply comments.

One framing observation guides everything below. An alert is not what leaves the tower; an alert is what reaches the person. A person who is not alerted in a form they can perceive and understand has not been alerted at all. The same redundant design also serves people who are asleep, wearing headphones, in loud environments, or unable to look at a display. Rules written

to reach Deaf people, where each channel carries its own safety controls and an equivalent fallback, reach many more people than they were written for.

Figure 1. One flood alert, answering the questions a person needs to act

The reference implementation's flood alert. The attention channels (rhythm, light, marks, color) carry that there is an emergency, how serious, and what kind; the action is carried in language, action-first, with sign-language detail one tap away. Repetition is bounded (Section VI.C).

II. Summary and Requested Relief

IDE's recommendations, in brief. First, standardized hazard symbols should be required for defined life-safety alerts once a tested symbol set and implementation standard exist, and never as a standalone remedy: a symbol must arrive together with an action-first plain-language instruction and with non-visual carriers of the same information. Second, the Commission should open a path, through a consensus standards process with Deaf, DeafBlind, blind and partially sighted testing at its center and with cognitive, motor, neurological and sensory-processing disabilities represented in that testing, to meaning-bearing tactile, visual and auditory attention signals: a small vocabulary of hazard family rhythms rendered through vibration, flash and sound, with severity carried as intensity and marking, never as a different rhythm. IDE has implemented such a vocabulary and offers its draft standard, implementation, and test program as inputs, not as a finished codebook. Third, earthquake text-to-speech should be supported with sensory symmetry: when the audio channel gains meaning, the tactile and visual channels used by Deaf and DeafBlind people should gain the equivalent in the same rulemaking. Fourth,

accessibility requires operational guarantees: capability detection with graceful fallback, interoperability with screen readers and braille displays, an affirmative and authenticated all-clear, a user-accessible presentation self-test, and defined handling of simultaneous alerts, all subject to alert-originator presentation controls including silent-alert instructions. Fifth, implementation should follow the Commission's proposed thirty-six month framework with measurable milestones.

Requested relief. IDE respectfully requests that the Commission:

1. Require any standardized EAS or WEA hazard symbol to be presented with an action-first plain-language instruction and a color-independent severity cue, rather than treating a symbol as a standalone accessibility remedy.
2. Require any unique audio or text-to-speech enhancement adopted for WEA earthquake alerts to have functionally equivalent tactile and visual counterparts, subject to alert-originator presentation controls, device capability, user accessibility settings, and defined fallback behavior.
3. Convene or support a consensus standards process to evaluate a small, open, pre-provisioned hazard-family vocabulary for tactile, visual and auditory attention signals, with compensated Deaf, DeafBlind, blind and partially sighted participation and rigorous human-factors testing that also includes people with cognitive, intellectual, developmental, motor, neurological and sensory-processing disabilities, people with multiple disabilities, older adults with combined hearing and vision loss, and users of hearing aids, cochlear implants, switch access and voice control, rather than adopt any draft vocabulary, including IDE's, as a final federal codebook in this proceeding.
4. Require capability detection and graceful fallback, interoperability with screen readers and refreshable braille displays, affirmative and authenticated all-clear presentation, an accessible user self-test of alert presentation, and defined treatment of simultaneous alerts, all consistent with the Commission's silent-alert framework.
5. Establish measurable performance criteria and a phased implementation period consistent with the Commission's proposed thirty-six month timeframe for standards, development, testing, deployment, and public education.[2]

III. Standardized Symbols: Require Them, But Never Alone

Responsive to FCC 26-38 ¶¶ 77-82.

The Commission describes symbols and earthquake speech as "a modest first step toward enhanced media emergency alerting" and seeks comment on whether to require EAS and WEA messages to include a simple, easily recognizable symbol representing the underlying emergency event.[3] The record before the Commission points in two directions at once: Notify NYC and Cornell Tech found that incident-specific symbols doubled participant comprehension,[4] while the Rehabilitation Engineering Research Center for Wireless Inclusive Technologies found that, among sixteen people who were Deaf and primarily used ASL for communication, the presence of NAPSG symbology "did not improve the participants' understanding of either the event or the recommended protective action."[5]

From IDE's practice, the RERC result is consistent with what IDE observes, and it supports larger, targeted testing; the two studies are not in conflict. A symbol is an excellent answer to one question only: what danger is it? It answers that question quickly, across languages, and at a distance. But a Deaf user opening an alert is asking a different question first: what should I do now? A tornado icon does not say "go to a basement." A flood icon does not say "do not drive." For a user whose first language is ASL and whose English proficiency may be limited, a symbol beside a dense English paragraph leaves the action exactly as inaccessible as before. That is the likely reason symbols alone showed no improvement for Deaf participants while showing large gains in a general population that could already read the text and used the symbol as an accelerator.

A. IDE's position on the Commission's symbol questions

Mandatory or voluntary. Standardized, pre-provisioned symbols should be mandatory for defined life-safety alert classes once a tested symbol set and an implementation standard exist. A symbol must never delay the underlying alert and must never substitute for an action instruction. Until testing completes, the Commission should set the requirement's effective date to the standards timeline rather than make symbols voluntary indefinitely: voluntary presentation produces inconsistent meanings, and inconsistency is itself an accessibility failure for users who learn by pattern.

Which symbols. IDE supports building from existing public symbol work, including NAPSG, with hazard-family granularity rather than one symbol per event code. IDE proposes, as a testable design hypothesis rather than a finding, that a small set of learnable families covers the alerting space the way a small set of traffic signs covers driving; IDE's draft uses seven (water, storm, ground, fire, human threat, other, test), and publishes a complete crosswalk from event classes to families in the Technical Appendix, including where chemical, radiological, health, and missing-person events land and how events spanning families take the originator's primary

categorization. Whether the right number is seven, or whether health emergencies warrant a family of their own, is exactly what the consensus process and human testing should decide. The family identifies a category only; it never determines the protective action, which the alert originator selects.

Placement, size, persistence, and multiple emergencies. For WEA, the symbol should appear statically adjacent to the alert headline, with a persistent but dismissible indication on the lock screen or in the alert history for the alert's active period. For EAS, a static symbol should appear adjacent to the visual message without covering captions, sign-language content, or essential programming information. When multiple emergencies are active, the device should present the highest-priority alert's attention pattern first and list other active alerts in an accessible queue; tactile and flash rhythms must never overlay or interleave, because a person reading by rhythm cannot parse two rhythms at once. On the Commission's transparency question (FCC 26-38 ¶¶ 81-82): IDE prefers placement that never covers captions, sign-language content, or essential programming over transparency, which degrades the legibility of the symbol itself for exactly the low-vision users it should serve.

Latency and reliability. Symbols should be pre-provisioned on the device and referenced by identifier, exactly as the Commission's template architecture already contemplates for sign-language assets, so that presentation requires no media download at alert time and adds no latency to the alert itself.

The two companions every symbol needs. First, an action-first plain-language instruction, displayed at least as prominently as the symbol, in short common words ("GO UP NOW", "GET OUT NOW", "STAY INSIDE"), ahead of any meteorological or administrative prose; in IDE's implementation the action line is the largest text on the alert, and Figure 1 shows why. Plain-language action vocabularies should be standardized and tested with Deaf, DeafBlind, and limited-English-proficiency users, mirroring how the Commission standardized template content. Second, redundant, color-independent severity marking: color fails people who are color-blind and fails everyone on a monochrome display, so severity should be carried at least twice visually (color plus a count of marks) and, where the device supports it, tactilely (Section V and Figure 3).

IV. Earthquake Text-to-Speech: Support, With Symmetry and Interoperability

Responsive to FCC 26-38 ¶¶ 83-86.

The Commission seeks comment on USGS's recommendation that receipt of a WEA earthquake alert trigger a verbal announcement using text-to-speech, and on a unique audio attention signal

for earthquake alerts.[6] IDE supports both, with positions on the Commission's specific questions:

- **Default.** Text-to-speech for an authoritative, standardized earthquake template should be on by default, with user controls that never make essential accessibility unavailable by default. A no-notice event leaves no time to discover a setting.
- **Sequence.** The spoken announcement should follow a brief attention cue rather than compete with it; two simultaneous sounds are less intelligible than one after the other.
- **Assistive technology.** Alert speech should be coordinated through platform accessibility interfaces so that alert speech and screen-reader speech do not overlap: the device should prioritize the emergency announcement, pause or queue other speech, keep the full alert text available to screen readers and refreshable braille displays (the text-to-touch equivalent of text-to-speech, and for many DeafBlind users the essential one), and restore the prior assistive-technology state afterward.
- **Audio routing and shared spaces.** Where speech is used, the rules should address how it reaches people who hear through devices and how it behaves when several devices speak at once: routing to hearing aids, cochlear implants, and Bluetooth or assistive listening devices rather than to a speaker the person is not using; lowering other audio and restoring it afterward; predictable volume and speech rate; and testing in crowded environments and in households where several devices announce the same alert seconds apart. Echo across nearby devices reduces intelligibility for everyone and is a plausible driver of opt-out, which the Commission's metrics should track.
- **Multilingual.** Standardized template text translates far better than free text, in every output modality; the Commission's template architecture is the right vehicle, and for ASL users, for whom English is often a second language, template content in ASL is the corresponding answer.
- **Confusion and education.** The Commission asks whether a unique earthquake signal would confuse the public. The answer is training by design: a device onboarding preview, a user-initiated self-test (Section VI), standardized public-education materials, voluntary periodic exercises, and an unmistakable distinction between TEST and ACTUAL presentations. IDE's implementation ships each of these today, and they are the same tools any unique signal will need.

The deeper principle IDE asks the Commission to adopt: when one sense gains a meaning-bearing enhancement, provide the equivalent for the other senses in the same rulemaking. If earthquake alerts gain a unique sound and spoken text for hearing users, they should gain a unique tactile cadence and flash rhythm for Deaf and DeafBlind users. The auditory channel can

also carry the hazard rhythm for people who rely on sound, including blind and partially sighted people. For them, the sound rhythm must do more than attract attention: it must identify the hazard family clearly enough to provide an immediate cue without relying on sight. The accessible spoken or screen reader message must still state the specific event and protective action. Alerts should reach eyes, body, and ears, with the same hazard rhythm available through touch, light and sound.

V. The Commission Should Open a Standards Path to Multisensory Attention Signals That Convey Meaning

Today, one common cadence announces every WEA alert: one long vibration of two seconds, then two short vibrations of one second each, in a prescribed repeated sequence, with the matching audio signal at 853 and 960 Hz.[7] A tornado warning, a flash flood warning, and a state test all feel identical. The Commission's own record states the consequence: the attention signal and cadence quickly grab attention, but communicate no information about the nature of the underlying emergency unless the subscriber accesses the device and reads the text (FCC 26-38 ¶ 83).

For a sighted hearing user, reading the screen costs seconds. For a blind or partially sighted user who relies on sound, a distinct auditory rhythm could identify the hazard family before speech begins. For a Deaf user asleep with the phone face down, for a DeafBlind user for whom touch is the only channel, and for anyone in the dark without their glasses, the cadence is not a doorbell before the message: the cadence IS the message, and whatever it fails to say, the alert has failed to say. USGS's logic for a unique earthquake sound applies with equal force to the channels Deaf and DeafBlind people rely on. IDE asks the Commission to state that meaning-bearing tactile, visual and auditory attention signals are a goal of WEA modernization, and to convene or support a consensus standards process, with compensated Deaf, DeafBlind, blind and partially sighted participation, to evaluate a small hazard-family vocabulary (Figures 2 and 4). IDE expressly does not ask the Commission to adopt IDE's draft patterns as a federal codebook; IDE offers its draft standard,[1] its reference implementation, and its test program as starting inputs, with a standards adaptation grant that lets the Commission and standards bodies reproduce, adapt, and incorporate the material royalty-free.[8]

Figure 2. The five questions, and which channels carry them

ATTENTION CHANNELS: the family rhythm on touch, light, and tone

1. Is this an emergency? 2. How serious is it? 3. What danger is it?

Redundant: any one enabled attention channel is enough to know an emergency is happening and which hazard family it is.

LANGUAGE CHANNELS: text, speech, sign language, braille

4. What should I do now? 5. Where is more information in my language?

The protective action is selected by the alert originator and conveyed in language; it is never inferred by the device from the hazard family alone.

The completeness test IDE proposes as the Commission's yardstick: every alert answers all five, the attention facts redundantly across senses, the action always in accessible language. Structural conformance is machine-testable (IDE publishes vectors and a validator); comprehension and protective-action performance require human testing.

A. Engineering findings offered to the record

IDE offers the following from building and testing the reference implementation. These are preliminary engineering findings and design hypotheses, offered to inform the standards work; they are not population-level accessibility outcomes, which is what the planned study is designed to measure.

1. **A body can learn a small vocabulary.** Distinct, learnable patterns require differences on at least two axes (pulse length and gap length), not merely different pulse counts. In preliminary engineering trials, long rolling pulses (water), a few sharp knocks (storm), one long unbroken hold (earthquake), and many fast short pulses (fire) were distinguishable by touch under the tested conditions, including through bedding; human-subject validation remains necessary. Tactile testing is being organized, and auditory testing with blind and partially sighted participants is planned.
2. **Severity must never change the rhythm.** Severity is expressed as vibration intensity where the device supports amplitude control, as color, and as a color-independent mark count, never as a different pattern (Figure 3). A person who learned "two long waves means water" must feel two long waves at every severity, or the vocabulary collapses. Because vibration amplitude control is not universal across devices, a conforming device without

validated amplitude control renders the rhythm unchanged and lets the marks, the color, and the words carry the level; it must not claim touch-graded severity.

3. **Visual rhythms can be designed inside photosensitivity limits.** The prototype patterns were designed not to exceed three flashes per second, within the flash-frequency bound of WCAG 2.3.1; device-specific evaluation of flash area, luminance, color, and viewing conditions remains necessary, and it must be carried out for each renderer separately, because a screen flash, a camera LED, and connected room lighting are different light sources carrying different risks. Compliance must never depend on a person knowing or disclosing a photosensitivity condition, so a steady, non-modulating light path and a non-visual path must remain available to every user without prior self-identification, and evaluation should consider migraine, vestibular and sensory-processing effects rather than seizure risk alone. Users who identify as photosensitive receive the steady, non-modulating light path: the steady light carries attention and urgency through duration and brightness, while the symbol and the language channels carry the hazard and the action.
4. **Much of the hardware is already in the field.** Many current devices contain the relevant haptic and flash capability, and recent Android releases include a user-enabled screen and camera flash notification feature. Implementation nevertheless requires standards, capability detection, operating-system integration, and cross-device testing: this is primarily a standards and implementation gap, although device capabilities vary.
5. **Mimetic design may reduce learning burden.** Four of the seven draft families are drawn from the hazard's own temporal signature, converging with the iconicity of sign languages: water rolls in long swells; the ground shakes in one unbroken hold; fire flickers in many fast pulses, as FIRE is signed in many sign languages with the fingers flickering upward. Three families (human threat, test, other) are deliberately abstract. Mimesis is a design hypothesis to be evaluated across languages, cultures, and disability groups; the first-exposure measure in IDE's study (can an untrained person identify the hazard from the pattern alone?) tests it directly. The auditory arm will test the same question from sound alone.
6. **Repetition must preserve the rhythm.** An urgent alert repeats until acknowledged, so each pattern ends in a quiet interval sized so that back-to-back repetition reproduces the learned rhythm exactly rather than fusing cycles. IDE found and fixed exactly this defect in its own engineering review; the published conformance suite now tests for it.
7. **Presentation must honor originator controls.** The Commission's silent-alert framework lets alert originators suppress the audio signal, the vibration cadence, or both, because a sounding or buzzing device can endanger a person hiding from an active shooter, and

consumers may override suppression only for vibration.[9] Any meaning-bearing vocabulary must ride inside that framework: event-specific presentation honors originator suppression instructions, applicable rules, the user's accessibility settings, and device safety limits. Fallback is graceful: a device that cannot render a pattern falls back to the platform's common cadence, never to silence, except where the originator has validly suppressed that modality.

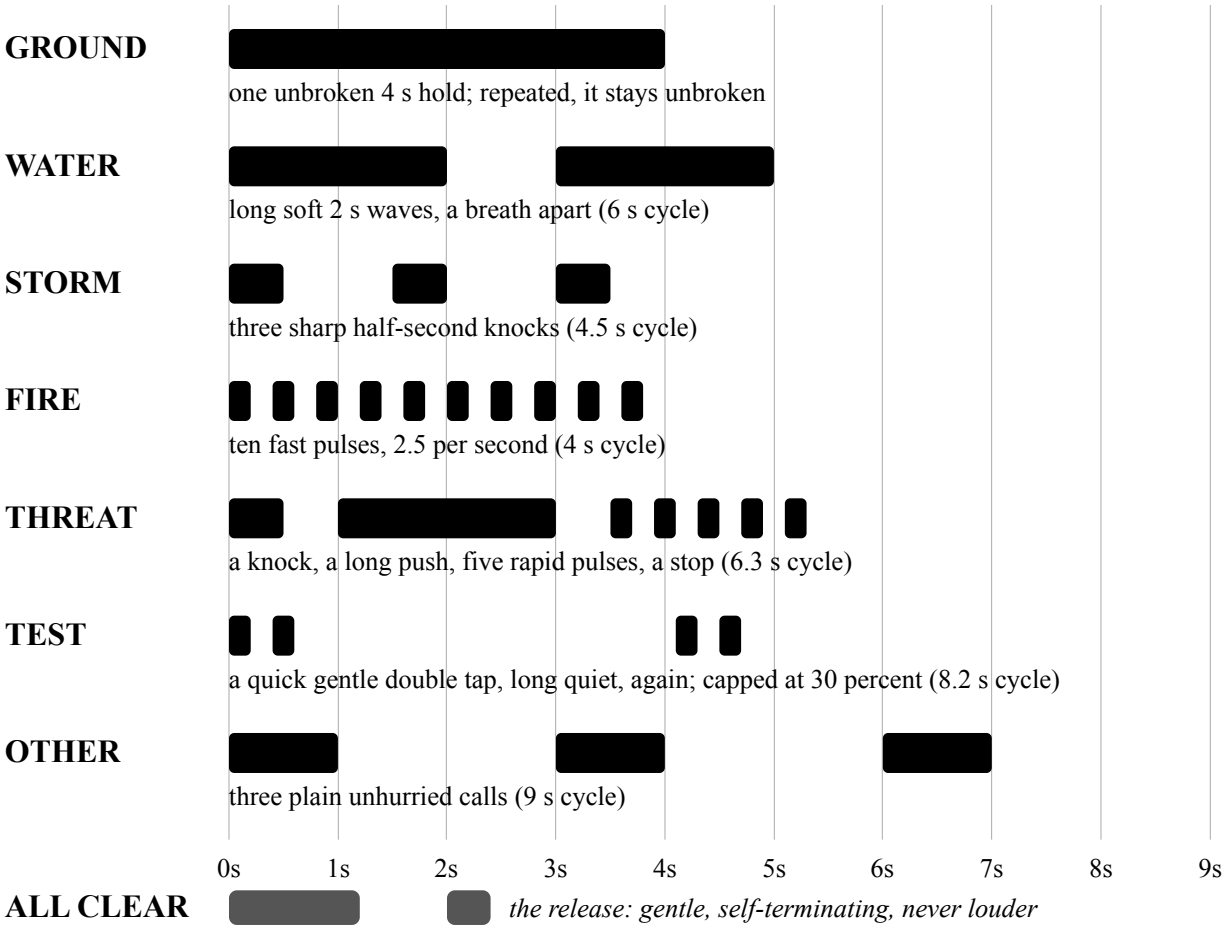
Figure 3. The presentation-priority scale: color, marks, and touch say the same thing

SAFE NOW	●	the release cue, gentle, self-terminating; the words say what ended
BE CAREFUL	▲	gentle: vibration at quarter strength, light and sound gentle
DANGER COMING	▲▲	half strength; light and sound at full power from here up
ACT NOW	▲▲▲	three-quarter strength (Severe) or full strength (Extreme)

The rhythm never changes with severity. Touch grading applies where the device has validated amplitude control; marks, color, and words carry the level everywhere.

The four levels form a presentation-priority scale derived primarily from CAP severity, not a restatement of it: Minor presents as BE CAREFUL, Moderate as DANGER COMING, Severe and Extreme as ACT NOW (touch, where graded, separates them). Unknown is stated as unknown in the words and presented at Severe-equivalent intensity, because a warning whose level cannot be read is presumed dangerous, never gentle. CAP urgency governs when to act and modulates priority, not this scale; CAP responseType and instruction text carry the action; a Cancel or AllClear is the affirmative all-clear. The absence of an alert is never evidence of safety.

Figure 4. The draft hazard-family rhythm vocabulary, drawn to scale



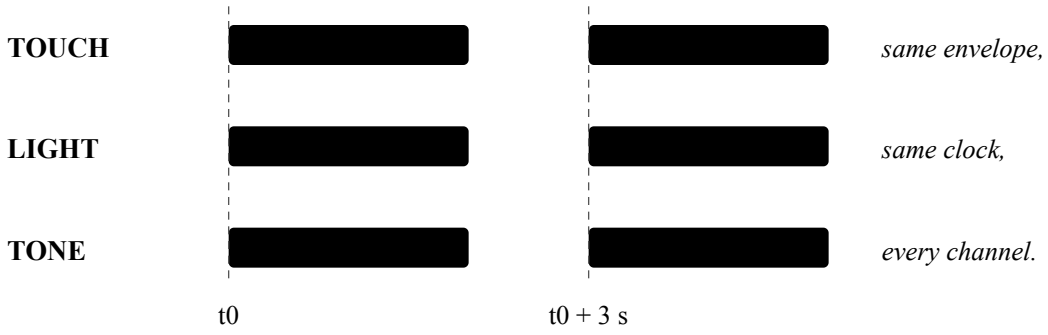
Each row is one cycle of one family's rhythm, identical on touch, light, and tone; dark blocks are on, white space is silence. The quiet tail at the end of each row is part of the pattern: urgent alerts repeat back to back, and each tail is sized so repetition preserves the family's cadence exactly; FIRE's tail equals its pulse gap, so its flicker simply continues, which is its mimesis. TEST is capped at thirty percent strength so a drill never feels like an emergency.

B. One clock, one envelope, many renderers

In the reference implementation, one shared clock drives every channel: the vibration, the screen flash, the device light, and the tone render the same hazard rhythm across all supported channels. A person receiving any available channel receives the same hazard pattern (Figure 5). A standards-grade specification needs tolerances rather than ideals, and IDE's draft proposes starting budgets for the consensus process: cross-modality skew within a device no greater than 50 milliseconds; pulse-duration error no greater than ten percent or 20 milliseconds, whichever is larger; repeats anchored to the original start time so error never accumulates; and a late-joining channel that rejoins in phase rather than restarting the cycle. An identical digital timeline does

not by itself establish identical human perception across vibration, light, and tone; that is one of the questions human testing must answer, per modality.

Figure 5. One hazard rhythm across three channels, driven by one clock (WATER shown)

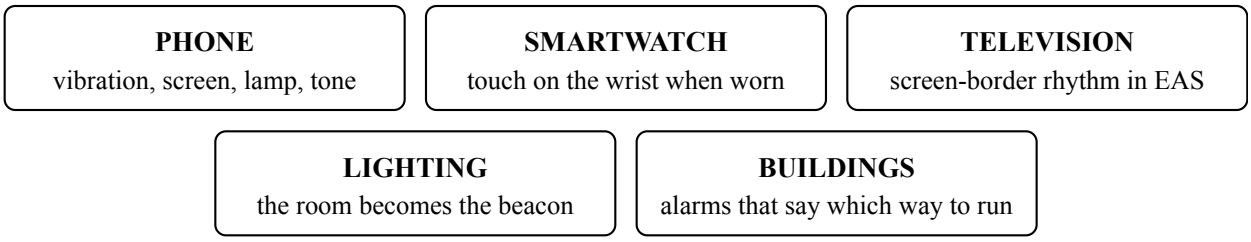


Tone provides the shared hazard rhythm for people who rely on auditory information, including blind and partially sighted people. It must be distinguishable enough for a listener to identify the hazard family and separate it from other families, not merely detect that an alert exists. The rhythm supplies an immediate family cue. The spoken or screen reader message supplies the specific event and protective action. IDE will test this with blind and partially sighted participants as experts in auditory access. The 520 Hz prototype supplements, but does not replace, the regulated WEA attention signal, whose frequencies and cadence remain the universal floor and fallback.

C. WEA and EAS are different environments, and the built environment comes later

For WEA, implementation runs through participating CMS providers, WEA-capable mobile devices, and operating-system rendering: pre-provisioned asset identifiers, capability detection, lock-screen behavior, and preservation of the common cadence as the fallback floor. For EAS, implementation runs through EAS participants and equipment: static symbol insertion adjacent to the visual message, interaction with captions and crawls, and equipment and software updates on the Commission's timeline, with legacy fallback preserved. The same learned vocabulary could one day render on televisions, connected lighting, and building notification systems, where today every alarm says only "danger" although a fire means GO OUT while a tornado means TAKE COVER and a tsunami means GO UP (Figure 6); IDE presents that horizon as future interoperability work for the standards process, not as a Part 10 or Part 11 mandate in this proceeding.

Figure 6. Device independence: one learned language, many renderers



one vocabulary, learned once, rendered by whatever channels each device has

Today a fire alarm and a tornado alarm demand opposite actions behind one undifferentiated signal; a hazard vocabulary lets any alerting device, for any person, deaf or hearing, say which.

D. Who does what

Function	Responsible actor
Select the protective action	Alert originator
Assign the event and hazard-family identifier	Originator under a standardized mapping, or an alerting gateway
Transport the identifier	WEA and EAS standards and infrastructure
Render symbol, cadence, flash, and speech	Device and operating system, or EAS equipment
Preserve silent-alert instructions	The entire delivery and presentation chain
Detect capability and apply fallback	Device and operating system
Maintain asset versions	Standards governance and the device update process
Provide the user self-test	Device and operating system
Issue the all-clear	Alert originator, through an authenticated update or cancellation

E. The template model points the way

The Commission's multilingual template program, which requires WEA-capable mobile devices to support template alerts including American Sign Language videos by Deaf signers, with compliance due June 12, 2028,[10] embodies three architectural decisions IDE regards as exactly right: the accessible content is standardized in advance rather than improvised during an

emergency; the asset is provisioned before use, so presentation does not depend on an additional media download at the moment the alert is received; and it uses human signers. Hazard symbols, plain-language action vocabularies, tactile cadences, and flash rhythms all fit the same architecture: small standardized assets provisioned to the device in advance and triggered by a standardized identifier carried with the alert through the applicable WEA or EAS transport mechanism. IDE encourages the Commission to treat the template program as the first instance of a general pattern for accessible alert content, not as a one-off.

On triggering: IDE does not assume every CAP field reaches the handset today. The proposal is a standardized presentation-asset identifier carried the way template identifiers are carried, with the mapping from event codes to families performed by the originator or gateway under a published table (Technical Appendix).

VI. Safety, Interoperability, Fallback, and Verification

A. The all-clear must be affirmative

An all-clear should be an affirmative, authenticated update or cancellation, linked to the alert it ends, that says in words what has ended: "FLOOD WARNING ENDED. Continue to avoid flooded roads." The reason is practical and applies to hearing people exactly as it applies to Deaf people: when a siren merely stops, a person sheltering cannot tell whether the danger ended or the siren failed, and a phone that simply falls quiet has the same ambiguity. The all-clear is the permission to come out, and permission cannot be carried by absence. The absence of an alert must never be treated as evidence of safety, because silence can equally mean a dead battery, no coverage, a disabled channel, or a device failure.

IDE's draft standard therefore gives the all-clear its own presentation: a calm, distinct RELEASE cue (one long soft press easing away, a breath, a short settling press) delivered gently on the enabled channels beside the words naming what ended. The release is self-terminating and never escalating: it is presented at most three times, never louder, any user interaction cancels the rest, and it then rests on its own. That behavioral asymmetry is the carrier: danger insists until acknowledged, safety lets go by itself, so the all-clear is distinguishable from every alarm before its shape is even read. Per channel, relief keeps its own character: intensity falls inside each press on the skin; the sound is a falling chime rather than the alert voice, and tone-only outdoor sirens never sound the release at all, because a siren speaking means danger; light swells rather than flashes and then holds a brief steady calm glow, so a person waking later can still read the state at a glance. This design was refined through structured adversarial review across the blind, Deaf, and DeafBlind perspectives, and first-exposure recognition of the release is a named measure in the study, including the planned auditory testing with blind and partially sighted participants.

CAP already provides the message-level mechanism in its update, cancel, and AllClear semantics. IDE frames the request within the Commission's own authority: WEA-capable devices and EAS equipment should present an issuer-authorized update, cancellation, or AllClear affirmatively and accessibly whenever one is received, while origination-side requirements are coordinated with FEMA and the applicable standards bodies, since IPAWS origination lies within FEMA's purview.

B. Verifiability by the user

A channel a user cannot test is a channel that fails silently. Deaf users routinely discover only during a real emergency that a vibration setting was off, a do-not-disturb mode suppressed a presentation, or a device cannot render what they expected. IDE's implementation ships a test surface where every channel (vibration, screen flash, device light, sound) can be exercised and confirmed by the user, with honest reporting when a channel is unavailable, and a first-run walkthrough that meets the user during setup. IDE recommends the Commission seek comment, in this or a future proceeding, on requiring WEA-capable devices to provide a user-accessible alert presentation test, including for the WEA State/Local Test messages and user-initiated presentation tests that already exist.

C. Acknowledgment and persistence

In IDE's implementation an urgent alert repeats until the person acknowledges it, and acknowledgment is a deliberate act on a labeled control. For a federal requirement IDE proposes the same behavior stated with its bounds, and the bounds are part of the proposal: repetition continues until acknowledgment or until a finite, human-factors-validated maximum presentation window closes, whichever comes first, subject always to alert-originator suppression instructions. Indefinite pulsing is rejected. When the window closes unacknowledged, the alert persists as an accessible status with periodic, bounded reminders rather than vanishing. The same finite window governs the one continuous-feeling pattern in the draft vocabulary, the earthquake hold: seamless repetition is a property of that pattern, never an exemption from the window. A presentation that politely goes quiet while the danger stands repeats the failure mode of every missed alert; a presentation that never yields ignores originator control and human tolerance. All of these bounds belong in the standard. The presentation should be prominent and system-reserved, distinguishable from ordinary notifications to the extent the operating system supports, and must never obstruct an emergency call or an active assistive technology. The acknowledgment control itself must be operable through platform accessibility services, including screen readers, switch control, voice control, and refreshable braille displays, must not require fine motor control, and must present a large, easily located target. Acknowledgment

records that a control was activated. It is not evidence that the person perceived, understood, or acted on the warning, and no rule should treat it as such.

VII. Costs and Implementation Schedule

IDE's prototype indicates that the rendering logic and symbolic assets can be implemented in software on many existing consumer devices: a small nonprofit implemented the full multi-sensory presentation stack, and the assets themselves are small, pre-provisioned, and require no additional media download at presentation time. IDE does not contend that nationwide deployment is costless. Standards development, operating-system and firmware engineering, carrier and gateway changes, device certification, EAS equipment and playout changes, asset distribution and version management, public education, accessibility testing, legacy-device fallback, and ongoing governance are real costs, and they fall differently on small and rural providers. A pre-provisioned, software-first design, common standards, capability detection, phased compliance, and preservation of the legacy fallback should materially reduce them. IDE supports the Commission's proposed thirty-six month implementation framework,[2] with milestones in this order: standards and human-factors work; development and integration; interoperability and conformance testing; deployment and public education.

The Commission asks how to quantify the benefits of faster recognition and understanding.[11] IDE proposes the outcome measures its own study will use, which any proposal in this docket can be scored against: time to first correct protective action; hazard-identification accuracy; protective-action comprehension; severity comprehension; confusion between signal families; retention over time; robustness across devices and placements; and the rate at which users disable or opt out of a feature. For auditory evaluation, IDE will also measure hazard identification and confusion from sound alone. IDE expects to submit any completed and quality-reviewed findings, with methodology, in reply comments, may supplement the record through a subsequent permissible filing if analysis completes later, and offers the instruments themselves for reuse.

VIII. Conclusion

The Commission's questions in this proceeding, on symbols, attention signals, text-to-speech, and presentation flexibility, are pieces of a single question: can every member of the public see, feel, or hear that there is danger, how serious it is, and what to do, in time to act? IDE respectfully asks the Commission to adopt the five-question completeness test as its yardstick, to require symbols only in company with plain language that states the action first and severity information that does not depend on color, to give earthquake enhancements tactile and visual

equivalents, and to open a consensus standards path to meaning-bearing attention signals across touch, light, and sound. Testing should include Deaf, DeafBlind, blind, and partially sighted people, with participants compensated and central at every step. IDE offers its draft Three Senses Alerting Standard, its reference implementation, its conformance suite, and its forthcoming study results to the record, and welcomes collaboration with the Commission, alert originators, device makers, researchers, and fellow commenters.

Respectfully submitted,

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Technical Appendix

A. Illustrative, non-normative event-class crosswalk

This mapping is offered to illustrate one testable approach to compressing event classes into a small attention vocabulary, not to establish that seven families are sufficient and not to bind any originator. Whether classes as different as a chemical release, a missing-person alert and a human threat can share one family is an empirical question, and IDE proposes confusion-matrix testing across the chemical, biological, radiological, health, missing-person and human-threat classes before any shared assignment is standardized; the normative mapping belongs to the standards process and, ultimately, to the originator or gateway applying a published table.

Event class	**Family**
Earthquake, landslide, avalanche, volcano	GROUND
Flood, flash flood, tsunami, storm surge, dam failure	WATER
Tornado, hurricane, cyclone, severe thunderstorm, winter storm, high wind	STORM
Wildfire, structure fire, fire weather	FIRE
Human threat, law enforcement, civil danger, missing person (AMBER), chemical, radiological, hazardous materials	THREAT
Health, air quality, infectious disease, utility and infrastructure, and every event without a family	OTHER
Drills, exercises, and system tests, whatever hazard words they carry	TEST

Events spanning families take the alert originator's primary categorization. The family identifies a category only; it never determines the protective action, which the originator selects and the language channels convey. Whether health emergencies warrant a family of their own is a question IDE expressly commends to the consensus standards process; until then they present as OTHER, which is honest attention without false specificity. IDE's reference mapping, in code, covers the CAP categories (Geo, Met, Fire, Security, CBRNE, Health, Env, Transport, Infra) and the common event phrases; the published table is versioned with the standard.

B. Conformance model

The draft standard publishes machine-checkable conformance vectors (the exact on and off timeline of every pattern) and a validator that checks a device's rendering log against them, covering rhythm identity, loop seamlessness, test-gentleness caps, photosensitivity bounds, and

fallback behavior. Structural conformance of this kind is machine-testable; comprehension and protective-action performance are not, and require the human testing described in Section VII. The draft standard, its machine-readable vocabulary, its conformance suite, and its developer kit are published at github.com/Signlo/three-senses and archived with a persistent digital object identifier;[1] the standards adaptation grant is in the repository as STANDARDS-GRANT.md.[8]

C. Study commitments

The structured study now being organized with Deaf and DeafBlind participants through IDE's network will measure, at minimum: first-exposure hazard identification (guessability), trained identification accuracy, confusion between families, severity recognition, time to correct protective action, retention, device and placement robustness (in hand, pocketed, on a table, under bedding), and opt-out intent. IDE will expand the protocol to invite blind and partially sighted participants as experts in auditory access, and will recruit people with cognitive, motor, neurological and sensory-processing disabilities, people with multiple disabilities, and older adults with combined hearing and vision loss, so that the vocabulary is measured against the range of people an alert must reach. The auditory arm will measure first exposure and trained identification from sound rhythm alone, confusion between sound families, reaction time, retention, and robustness across devices and ambient noise. IDE expects to report participant counts, device models, protocol, and results with its reply comments, or through a subsequent permissible filing if analysis completes later, and will identify anything that did not replicate as plainly as anything that did.

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[1] Three Senses Alerting Standard, Draft 0.10.2 (Aug. 2026), https://github.com/Signlo/three-senses (release v0.10.2, commit f542616ffbdf7ca89ba0683c40f96be418022dcb); archived at DOI 10.5281/zenodo.21977982 (concept DOI resolving to the latest archived release). Summary at https://ideafe.org/standard.

[2] FCC 26-38 ¶ 140 (proposed rules effective "thirty-six months after publication" in the Federal Register).

[3] FCC 26-38 ¶ 77.

[4] FCC 26-38 ¶ 78 (citing Notify NYC and Cornell Tech findings that incident-specific symbols "doubled participant comprehension"); a voluntary approach appears in the record at ¶ 79.

[5] FCC 26-38 ¶ 80 (citing the Wireless RERC study; sixteen Deaf primary-ASL participants).

[6] FCC 26-38 ¶¶ 83-86 (default and opt-in at ¶ 85; screen readers and multilingual output at ¶ 84; the unique earthquake signal and public education at ¶ 86).

[7] 47 C.F.R. §§ 10.520 (audio attention signal, 853 Hz and 960 Hz), 10.530 (vibration cadence).

[8] International Deaf Emergency, Standards Adaptation Grant, STANDARDS-GRANT.md (perpetual, worldwide, royalty-free license for the Commission, FEMA, and recognized standards development organizations to reproduce, adapt, and incorporate the normative material into public standards, with attribution).

[9] FCC 25-14, Appendix A (47 C.F.R. § 10.490: originator selection of presentation without the audio signal, the vibration cadence, or both); id. ¶ 2 (a loud signal "can cause harm if it betrays the location of a student in hiding to an active shooter"); id. App. A (47 C.F.R. § 10.530(d)) (consumer option to enable vibration for all alerts, overriding suppression; no such override exists for audio).

[10] 47 C.F.R. § 10.500(e)(2) (subscriber choice of pre-scripted Alert Messages in American Sign Language, adopted in FCC 23-88); Public Safety and Homeland Security Bureau, DA 25-1078 (rel. Dec. 18, 2025) (announcing June 12, 2028 as the compliance deadline for multilingual templates, including that WEA-capable mobile devices must support templates in American Sign Language).

[11] FCC 26-38 ¶ 126.