Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Wireless Emergency Alerts	)	PS Docket No. 15-91
	)	
Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System	)	PS Docket No. 15-94
	)	
	)	

COMMENTS OF THE ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS

The Alliance for Telecommunications Industry Solutions (ATIS), on behalf of its Wireless Technologies and Systems Committee (WTSC), hereby submits these comments in response to the *Report and Order* and *Further Notice of Proposed Rulemaking* (*FNPRM*), released September 29, 2016, in the above-referenced dockets. In the *FNPRM*, the Federal Communications Commission (Commission) seeks input on proposed changes to its rules pertaining to Wireless Emergency Alerts (WEA). As the primary organization working to develop WEA technical requirements, ATIS is pleased to provide its input to the *FNPRM*.

I. Background

ATIS is a global standards development and technical planning organization that leads, develops and promotes worldwide technical and operations standards for information, entertainment, and communications technologies. ATIS' diverse membership includes key stakeholders from the Information and Communications Technologies (ICT) industry – wireless and wireline service providers, equipment manufacturers, broadband providers, software developers, consumer electronics companies, public safety agencies, and internet service providers. ATIS is also a founding partner and the North American Organizational Partner of the Third Generation Partnership Project (3GPP), the global collaborative effort that has developed the Long Term Evolution (LTE) and LTE-Advanced wireless specifications. Nearly 600 industry subject matter experts work collaboratively in ATIS' open industry committees and incubator solutions programs.

ATIS WTSC coordinates, develops and recommends standards and technical reports relating to wireless/mobile telecommunications networks. With active participation from key wireless service providers and manufacturers, WTSC is the primary industry committee within ATIS that focuses on next generation wireless issues, including those wireless issues related to the implementations of LTE in the U.S. WTSC is also the lead on multiple joint industry standards projects, including work on text to 9-1-1, coexistence and interference issues, WEA, and public safety mission critical Push to Talk (PTT) voice interoperation between Land Mobile Radio (LMR) and LTE systems. ATIS WTSC has also been a major developer of standards and specifications related to WEA and are currently examining the technical feasibility of the standardization, development and deployment of a cellular earthquake early warning system (EEWS) broadcast capability.

ATIS WTSC has developed several feasibility studies related to WEA and EEWS, including the ATIS *Feasibility Study for LTE WEA Message Length* (ATIS-0700023), *Feasibility Study for WEA Cell Broadcast Geo-Targeting* (ATIS-0700027), *Feasibility Study for WEA Supplemental Text* (ATIS-0700026) and *Feasibility Study for Earthquake Early Warning System* (ATIS-0700020). ATIS WTSC is also working with key stakeholders including the California Office of Emergency Services (CalOES) and Department of Conservation (CalDoC), California Institute of Technology (Caltech), the U.S. Geological Survey (USGS), the University of California, Berkley, the University of Washington, and the Washington Military Department Emergency Management Division to identify and refine requirements and to develop the architectural framework that will allow the delivery of EEWS messages in a timely manner.

II. Comments

In the *FNPRM*, the Commission proposes to amend its rules to delete statements indicating that some WEA functionality is dependent on the capabilities of a participating service provider's delivery technologies.[1] ATIS does not support deletion of these statements. While ATIS agrees with the Commission that service providers' existing infrastructure has proven to be capable of supporting WEA functionalities, it continues to believe that these statements provide a necessary and accurate description of an essential fact – that WEA functionality depends on the underlying network capabilities. As networks and associated delivery technologies continue to evolve, ATIS believes that it is important to recognize that WEA will remain dependent on the functionality of the underlying network.

[1] *FNPRM* at ¶113.

The Commission also proposes to require WEA-capable mobile devices to preserve Alert Messages in an easily accessible format and location until the Alert Message expires.[2] ATIS believes that basing a preservation requirement on the expiration date/time of the message would pose significant technical challenges and inhibit device manufacturer and OS provider innovation. Chief among these challenges is the fact that the expiration date/time of the WEA message is neither defined nor transmitted to the device in a manner that would allow this information to dictate device behavior. ATIS therefore recommends that any requirements associated with the preservation of messages not be based on the message's expiration date/time.

Comment is also sought on timing-related issues associated with the possible use of WEA for the transmission of earthquake early warning messages. In particular, the Commission proposes to require service providers to deliver earthquake-related Alert Messages to the public in fewer than three seconds, "measured from the time an earthquake-related Alert Message is created to when it is delivered and displayed at the mobile device."[3] ATIS strongly urges the Commission not to adopt requirements related to earthquake-related messages as crucial work on this issue continues by the industry and other key stakeholders, including public and private sector seismology experts. This work, which is being completed within ATIS WTSC, includes efforts to identify and refine the requirements and architecture associated with the deployment of an EEWS. ATIS urges the Commission not to disrupt this important work by adopting requirements and notes that, until the architecture has been defined for EEWS, key decisions cannot and should not be made regarding EEWS.

[2] *FNPRM* at ¶116.
[3] *FNPRM* at ¶120.

The Commission also inquires in the *FNPRM* about whether it should require prioritization of earthquake-related alert messages at the Alert Gateway by processing them before any non-Presidential Alert that may also be queued for transmission.[4] ATIS believes that any decisions regarding the prioritization of EEWS messages would be premature because, as noted above, significant work by the subject matter experts is currently underway. This work includes the identification of the architectural framework surrounding EEWS and, in particular, what role WEA may play in the delivery of secondary (less time-sensitive) earthquake-related messages. ATIS continues to believe that WEA is not the appropriate platform on which to provide primary EEWS alerts, particularly given the critical timing requirements for primary notifications and concerns related to the inherent latency of WEA. To the extent that WEA's role is limited to providing supplemental or secondary earthquake-related messages after the primary EEWS message is transmitted, prioritization of these messages likely is not necessary.

ATIS disagrees with the Commission's suggestion that the standardization of the transmission periodicity of WEA message segments should be considered to reduce end-to-end alert delivery latency for WEA Alert Messages.[5] There are important reasons that this suggestion should not be implemented. First, the Commission should not be putting requirements on specific operational parameters of the carrier networks. ATIS believes that it is not appropriate for the Commission to define values on specific network parameters. Decisions regarding these parameters must be left to the providers as attempts to dictate these values would be highly disruptive to network operations and performance, including operations that extend well beyond WEA, and could inhibit innovation. More importantly, this suggestion is premature while the industry continues to work with key stakeholders to develop the appropriate

[4] *FNPRM* at ¶121.
[5] *FNPRM* at ¶121.

architectural framework and to identify the appropriate role, if any, for WEA in an EEWS. ATIS strongly believes that decisions regarding the architectural framework surrounding EEWS should be left to industry experts and the carriers. Second, attempting to standardize the transmission periodicity of WEA message segments would have global impacts and potential disruptions to network and device operations well beyond WEA at a time when the health of the cellular system is critical.[6] Given that the Commission has not demonstrated that this timing parameter is a critical element in delivering timely earthquake warnings, ATIS does not believe that this standardization effort or the associated impacts to network operations can be justified.[7]

The Commission seeks comment on how a many-back-to-one communication tool could facilitate emergency managers' response planning efforts.[8] ATIS believes that WEA is not an appropriate mechanism to provide this functionality. Because WEA uses broadcast technology, there is no technical capability for information to be communicated "back" to the originator. ATIS also notes that there may be effective, alternative methods for achieving the Commission's goals on this matter, including the use of URLs in WEA messages and alert originator-developed web-based solutions.

Comment is also sought in the *FNPRM* on technical constraints associated with the support of multimedia content in WEA.[9] In the Commission's explanation of this issue, it includes information from the *ATIS Feasibility Study for WEA Supplemental Text* that "a thumbnail-sized image would be 14,400 bytes in size if an 8-bit color scale is used, and would

[6] ATIS has previously noted that the change in the transmission periodicity would have impacts on network and devices (including battery life). ATIS has also noted that, under the approach being examined by the industry, primary EEWS notifications would not contain any "messages" but, instead, would be pre-loaded on devices for display when an EEWS notification is received.
[7] While this is described as an effort to standardize the periodicity, ATIS notes that this has already been standardized to a range of 80 ms to 5.12 seconds.
[8] *FNPRM* at ¶124.
[9] *FNPRM* at ¶128.

require the broadcast of 3600 octets, assuming 25 percent compression."[10] Based on this, the Commission seeks comment on whether 14,400 bytes would be an appropriate maximum size for any multimedia content. ATIS does not support the proposed requirement and notes that, in its *Feasibility Study for WEA Supplemental Text*, it explained that even the small size of 14,400 bytes would be too large to transmit in WEA as it would require at least 11 WEA binary messages to broadcast, even with an increased WEA maximum of 360 characters.[11] As noted in the study, transmission of 11 WEA messages is not feasible and has significant potential for disruption of the network.

In the *FNPRM*, the Commission correctly acknowledges the possibility for increased network load associated with the proposed WEA multimedia content and seeks comment on whether staggering transmission of multimedia message segments could facilitate delivery of this content, while mitigating potential network congestion concerns.[12] ATIS does not support this approach and notes that the staggering of multimedia segments will negatively impact the timely delivery of the complete message. The technical feasibility of such an approach would also require additional study within standards organizations.

Input also is sought in the *FNPRM* on support for languages other than English in WEA including ideographic languages, such as Vietnamese, Chinese and Korean.[13] As noted in the *FNPRM*, support for these languages would require service providers to switch from GSM 7-bit encoding to basic Unicode (UCS-2) character set.[14] ATIS does not support switching to UCS-2 because, as discussed in its *Feasibility Study for LTE WEA Message Length*, such a switch would

[10] *FNPRM* at ¶128 (citing ATIS *Feasibility Study for WEA Supplemental Text* at p. 10).
[11] ATIS *Feasibility Study for WEA Supplemental Text* at p. 10.
[12] *FNPRM* at ¶130.
[13] *FNPRM* at ¶136.
[14] *Id.*

significantly impact the maximum number of display characters.[15] ATIS notes that requiring the use of the UCS-2 character set would decrease the number of display characters to less than half of the 360 character maximum.

The Commission proposes to require providers to match the target area specified by alert originators and asks whether a provider should be considered to have matched the targeted area if 100 percent of devices within the targeted area receive the Alert Message, with not more than 0.1 mile overshoot.[16] ATIS does not support this benchmark for target area "matching" because, given the topology of networks, locations of cell sites, and basic physics of RF propagation, a participating provider cannot guarantee that 100% of devices will receive a WEA message. Moreover, because this proposed benchmark would require use of the positioning technology in the core network, it could result in overload conditions on positioning infrastructure.

The *FNPRM* also seeks comment on WEA capabilities for 5G networks.[17] ATIS notes that the industry is working on developing the requirements and architectures for many 5G-related issues, both within ATIS and through the participation of ATIS and ATIS members in 3GPP. This work includes efforts to ensure that key public safety-related functions will be supported by 5G specifications. In fact, a March 2016 contribution by ATIS members to 3GPP noted that 5G systems must "provide mechanisms to enable a public warning service that provides warning notifications to users meeting regional regulatory requirements."[18] ATIS and its member companies will continue to develop the capability and standards for WEA in 5G in a manner that supports interoperability and roaming through global standards. It is thus premature for the Commission to develop requirements for WEA capabilities in 5G systems.

[15] ATIS *Feasibility Study for LTE WEA Message Length* at p. 7.
[16] *FNPRM* at ¶140.
[17] *FNPRM* at ¶147.
[18] *Proposed Recommended Region Specific Requirements for 3GPP "5G" SI* (RP-160081).

Finally, ATIS notes that the Commission seeks input on the implementation timelines associated with the proposed rules.[19] ATIS notes new requirements will likely require updates to industry standards and upgrades/enhancements to both networks and devices, particularly to the extent that the Commission adopts rules that do not reflect the industry's existing work and technical recommendations. ATIS believes that it is premature to develop regulatory deadlines for new WEA and EEWS functionality. Instead, ATIS recommends the Commission task ATIS, the industry, and FEMA with developing a roadmap for the deployment of WEA functionality that would consider the existing work efforts on this matter and other industry priorities, such as the development and deployment of 5G technologies.

III. Conclusion

ATIS appreciates the opportunity to provide its further input to the *FNPRM* and urges the Commission to consider the recommendations above.

Respectfully submitted,

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[19] *FNPRM* at ¶176.