9710 Park Davis Drive, Indianapolis Indiana 46235
(317) 895-3600, (317) 895-3613 FAX

The following comments from Trilithic Incorporated are submitted in response to the Federal Communication Commission's solicitation of comments in:

Public Notice
DA 13-1969
Released: September 23, 2013
EB Docket No. 04-296

Responses are indented in the bulleted text below.

- We seek comment on what impact, if any, a discrepancy between the time an EAN is received by an EAS Participant and the Time of Release indicated in the Header Code would have on the public's ability to obtain important information from the President in an actual emergency.
    - Section 11.51(m) of the Commission's rules state that "EAS messages with the EAN Event code must be transmitted immediately and Monthly EAS test messages within 60 minutes". Section 11.51(n) of the Commission's rules state that "EAS Participants may employ a minimum delay feature, not to exceed 15 minutes, for automatic interruption of EAS codes. However, this may not be used for the EAN event which must be transmitted immediately. The delay time for an RMT message may not exceed 60 minutes". Section 11.54(a) of the Commission's rules state "Immediately upon receipt of an EAN message…" followed by procedures to follow during an EAN.
    - The Commission's rules clearly state that an EAN must be transmitted immediately upon receipt. The audio for an EAN is live, which further implies that the EAN needs to be transmitted immediately. The rules in general imply that all EAS messages are to be considered active at the time of receipt. The rules would need to be amended in order to make it work properly for scheduling events for future times.
    - The Commission's rules do not include specifications regarding the clock tolerance or mechanisms for synchronizing time between Encoder/Decoders, therefore "scheduling" events would result in unpredictable behavior due to clock variations.
- We thus seek comment on the various ways in which EAS equipment is designed and/or programmed to process the various Header Code elements during an EAN activation. Commenting equipment manufacturers should indicate the extent to which their EAS equipment is programmed to recognize and apply any, all, or none of the elements of a Header Code when the event code is an EAN.
    - Trilithic loosened the filtering for EAN alerts after an accidental activation of the EAN revealed that the Washington DC FIPS code was being used for an EAN. The message also had problems with the origination time and used the obsolete "EAN"

origination code. The message was expired before receipt due to originator clock errors, in combination with a 15 minute duration field.
    - Trilithic Encoder/Decoders verify that a valid originator code is present in the EAS header. Exception processing now allows the obsolete "EAN" originator code to be considered valid for an EAN.
    - The FIPS codes are processed only to the extent that a valid 6 digit FIPS code must be included in the EAS header. The inclusion of any 6 digit FIPS code will pass the location filters.
    - The EAN alert is filtered for expiration, however a tolerance of plus or minus two (2) hours is allowed. An EAN can be expired for up to 2 hours before it's rejected. The reason for this tolerance is to account for clock drift and errors due to daylight savings or incorrect time zone configuration.
    - The duration field of the EAN, while loosely used to determine the valid time period of the EAN, is never used to terminate an EAN in progress. The duration of the EAN is also used to generate the "effective until" time of the message text.
- Further, we seek comment on whether the unique nature of the EAN as a mandatory nationwide live alert obviates the need for some or all of the other elements of the Header Code.
    - The header code for an EAN needs to include all of the required elements in the EAS header. If it does not at least comply with EAS protocol, depending on the Encoder/Decoder, the data may be discarded by lower level DSP firmware or FSK decoding hardware.
    - A valid originator code should be included because the generated text is derived from the elements in the EAS header.
    - At least one valid FIPS code needs to be included in order to comply with the EAS protocol. We recommend using FIPS codes that allow receiving EAS Encoder/Decoders to filter for valid locations as they do with any other EAS event. Also, we recommend defining "000000" as the FIPS code for the entire USA, which would be consistent with the IPAWS CAP rules.
    - Use of a National FIPS code, allowing location filtering to be put back in place, would provide greater flexibility in the testing of the EAN. For instance, state by state testing could be conducted directly through the PEP system.
    - The expiration time of an EAN message should be used to determine if the message is valid. This could prevent a recording of a previous EAN message from inadvertently activating the system.
    - Making the EAN more consistent with other types of EAS messages will ultimately make it more reliable. EAS Encoder/Decoder manufactures currently must handle the EAN differently than other EAS messages. If the EAN were treated more like other events, the software would be easier to test and maintain, which ultimately makes it more reliable.
- Moreover, Section 11.31(c) of the Commission's rules states that the EAS protocol "must not be amended, extended or abridged without FCC authorization."23 We seek comment on whether parties view this rule as applying in an EAN activation, and, if so, how it applies. Do EAS Participants and other stakeholders believe that this rule needs to be clarified or revised to ensure that EAS equipment processes EANs in a consistent manner?

    - This rule applies to all EAS messages, including the EAN. If the Commission decides that elements in the EAS header should be treated differently for an EAN, then those differences need to be clearly defined in the rules. For example, if an EAN is going to use the Washington DC FIPS code, and all Encoder/Decoders are supposed to transmit the message even though it does not contain a FIPS code for their area, it should be clearly stated in the rules.
- Finally, what costs, if any, would EAS Participants incur to ensure that their EAS equipment can recognize and process all or some of those elements, including any costs for reprogramming, equipment replacement, or other related adjustments necessary to achieve this result? What are the benefits, and would they justify any of the identified costs? In responding to these questions, we ask that commenters identify both costs and benefits with specificity and explain how they weigh against each other.
    - The cost depends on the extent of the changes required. The only change that would require significant changes, and therefore costs to the EAS Participants, would be to allow the EAN to violate EAS protocol. Any other change would have little to no cost for EAS participants.
- We seek comment on whether certain EAS equipment adheres to the Time of Release Code, even if it is different than the time of the EAN. Does some EAS equipment "intentionally" disregard the Time of Release code and broadcast an EAN immediately upon its receipt? What impact, other than potentially delaying the broadcast of an EAN, do these equipment characteristics have on an EAS Participant's ability to deliver an EAN?
    - Trilithic's EAS Encoder/Decoder's consider EAS to be active upon receipt, whether it's an EAN or other EAS event. The codes that specify origination time and duration are used to determine if the message has expired. If the message has not expired, it's considered active at the time of receipt.
    - Within the (generally 15 minute) relay constraints of the Commission's rules, we do not see any advantage to delaying public knowledge of an emergency condition.
- We also seek comment on whether the Time of Release Code is a key element in defining the validity of an EAN message, and if so, why.
    - Trilithic believes that the Time of Release code should be used to determine if the EAN message has expired. It should not be used to schedule an EAN for a future time.
    - The rules should be amended to clearly state that the Time of Release code is not intended to schedule an event, but is only used to determine when a message expires.
- Further, we seek comment from those EAS Participants, equipment manufacturers, and other affected stakeholders that do not recognize the Time of Release Code when an EAN is the event code, what their reprogramming, equipment replacement, or other costs might be if they were required to recognize the Time of Release Code for an EAN.
    - If the Time of Release were to be used to schedule the EAN for a future point in time, the time of transmission would become unpredictable due to clock inaccuracies in the Encoder/Decoder's. The only synchronization method available to EAS is to activate as soon as possible after receipt.
    - If the rules are amended to use the Time of Release code to schedule events for a future time, additional requirements would need to be added to specify clock tolerances or methods to synchronize time between EAS Encoder/Decoder's.
    - There would be no cost to transmit messages immediately upon receipt

    - Use of the Time of Release to schedule events could result in significant costs, especially for older legacy Encoder/Decoders.
- We also seek comment on whether the daisy-chain process of EAS message distribution (as messages pass from one station to another) makes it technically infeasible to base uniform broadcast of the EAN on the Time of Release Code. For example, are there any delays in EAN propagation resulting from the daisy-chain process that may impact the timing? Even if using the Time of Release Code is feasible, would the benefits of triggering the broadcast of EANs upon the Time of Release Code outweigh the drawbacks?
    - The first station in line holding onto the message would prevent any downstream Decoders from receiving the message until after the Time of Release. Synchronization is not possible in a daisy-chain distribution system in which activation is synonymous with relaying the message.
- We now seek comment on whether there should be a nationwide location code, in light of the experience of the Nationwide EAS Test.
- As noted above, the EAN is an alert for the entire United States insofar as it would activate every piece of EAS equipment in the country.39 Because of this fact, is there any reason that EAS equipment should be required also to recognize a location code before transmitting an EAN?
    - A National code has always made sense. Each time the Commission asks if a national code should be added, the majority of responders believe it should be added.
    - Most manufacturers, given that the EAN is not functional when following strict location filtering, have been forced to modify their equipment to accept additional location codes, or ignore them completely for an EAN.
    - Due to the introduction of the CAP "000000" code, in addition to the necessity to modify EAN location filtering in the first place, our Encoder/Decoders already process the "000000" code and identify it as the entire United States.
    - Encoder/Decoders currently have to have exception processing to modify or disregard location codes for the EAN. A National code, once reliably implemented by the EAN source, would allow the removal of exception processing by Encoder/Decoder manufacturers.
    - Once manufacturers can reliably add location filtering back into the EAN processing, there is no technical reason why GEO-targeted Presidential Addresses could not be made.
    - The Commission already has modifications to the FIPS standard specified in Part 11. From a standards perspective there is no reason additional FIPS cannot be added.
- To the extent that a location code is necessary for EAN transmission, we seek comment on how use of the Washington, D.C. location code affected the Nationwide EAS Test. To what extent did EAS Participants outside of the Washington, D.C. metropolitan area transmit an EAN message referencing the Washington, DC area location code? What public feedback, if any, did EAS Participants receive as a result? The Bureau also received anecdotal information that some cable set top boxes in areas other than Washington, D.C. rejected the Washington, D.C. location code and did not deliver the alert to the public. To what extent did this occur?
    - If exception processing was not added by an Encoder/Decoder manufacturer to modify the location text for an EAN, the natural translation of the location code would be Washington DC.

    - Specifically, our equipment allows the user to over-ride the literal translation in the case of the EAN, but the end user can choose to use the literal translation. If the user chooses to over-ride the literal translation, the text displayed for the location will be "Entire United States".
    - We did not receive any feedback regarding the translation of the EAN.
    - Our Encoder/Decoders do not send out Washington DC location codes in the event of an EAN. EAN Activation on a cable system requires that a global location code be sent in order to activate all downstream equipment. These global codes have been incorporated into the cable system EAS activation protocols.
- Alternatively, should the Commission consider amending its rules to specify a nationwide geographic location code? If so, what specific changes would need to be made to the Part 11 rules to adopt a nationwide location code, other than adding the adopted nationwide location code to the list of geographic location codes already contained in the Part 11 rules?
    - The Commission should add the location code "000000" to Part 11 to identify the United States (and territories).
    - The cost of implementation would be virtually non-existent.
    - No additional changes to Part 11 need to be made for this change.
- Moreover, what would be the impact on the ECIG's Implementation Guide of a rule specifying a nationwide geographic location code? Should the Commission recommend that the ECIG revise the ECIG Implementation Guide? If so, what changes should the Commission recommend? Similarly, what would be the impact, if any, on the CAP v1.2 IPAWS USA Profile v1? Should the Commission recommend that OASIS or any of the other drafters of the profile revisit the profile were the Commission to revise its rules? If so, how?
    - Addition of the "000000" code does not require a change to the ECIG Implementation guide. The guide specifies handling of the code and specifies that at the time of its writing the code was not recognized by the Commissions rules.
    - The ECIG Guide also specifies that treatment of the all zeroes code may vary from vendor to vendor. This may be removed or modified to match any implementation date (or other criteria) specified by the FCC.
    - The IPAWS Profile already recognizes the all zeroes code and would not require modification.
- Finally, what impact, if any, would a rule specifying a nationwide geographic location code have on EAS equipment? Could the location code be readily implemented via software or other changes that would not require swapping out existing EAS or other equipment?
    - In our estimation implementation of the all zeroes code "000000" as a national code would be negligible, with little if any impact or cost.
- We seek comment on whether the Commission should address these inconsistencies and, if so, how. Should the Commission address this issue by encouraging the development of industry best practices? Should the Commission amend its EAS rules to establish minimum specifications for the manner by which EAS Participants should present text crawls?
    - There are many different system architectures and equipment used to present EAS messages to subscribers. Specifying font type, font size, and crawl speed would not guarantee consistency or even readability across all systems. A best practices guide that recommended large fonts and slow crawl speeds could be helpful, but anything more than that would have a large impact on the industry as a whole.

    - Specifying fonts, crawl speeds, font sizes, or even (for example) left to right crawls could result in astronomical costs to the cable, and wireline industries, and significant costs to broadcasters. Much of the multi-use hardware involved in message display may need to be replaced.
    - A script for the EAN would guarantee a consistent text message for the Presidential alert, and could be drafted to be more informative than the translation text generated from the EAS header codes. The text generated for non-EAN events is already very similar due to the display requirements already in the rules. Adding additional display requirement for non-EAN events would not provide much benefit.
- Finally, what impact, if any, would any rule specifying text script, font, crawl speed, *etc.*, have on EAS equipment? Can such equipment be easily programmed? What about EAS Participants' non-EAS related equipment, such as a character generator, that is used to generate an EAS text crawl? Is it feasible or practical to adopt a single set of specifications that all such equipment could meet?
    - New requirements on how the text is generated from the EAS header codes would only affect EAS Encoder/Decoder's. It would be a software only change and the cost would be minimal.
    - Adding requirements for the font type, font size, and crawl speed would affect a large number of equipment manufacturers and could require new equipment to be purchased. This would have a large impact, including cost, on EAS Participants.
- …The Commission and FEMA elected to use the EAN rather than the NPT code, primarily to replicate an actual alert as closely as possible,48 but also because the NPT would not test for problems related to promulgation of the EAN, and would have required each EAS Participant to manually alter its equipment to recognize and accept the NPT.49 Given the risk of error and added expense associated with use of the NPT, the Commission opted not to use the NPT for the initial Nationwide EAS Test
    - Additional choices made during the test directly contradicted the above mentioned reasoning. The EAN was not precisely replicated because manual intervention was introduced in order to create test text and slides Some EAS Participants (and vendors) had to modify equipment firmware to add a test mode to the EAN routines in order to provide test text instead of actual EAN text. EAS Participants rewired equipment to supply test slides, and manual intervention was added to an automated process.
    - One of the unique aspects of an EAN is that it needs to be tested without a time limit. The original plan was for the test to be 3 minutes long, but shortly before the test it was decided to shorten the audio to 30 seconds. In the future, EAN tests need to be longer than 2 minutes in order to test this aspect of the EAN, as well as make it more consistent with an actual EAN, which would presumably last longer than 2 minutes in order to overcome the EAS daisy chain.
    - The EAN is so unique in its behavior that it shares very little with the programming and activation sequences of other EAS messages. In each EAS Encoder/Decoder and in the downstream activation protocols, an entirely different specification exists for the EAN. There are really only three possibilities to provide an adequate test for the EAN:
        - Change the EAN so that it behaves the same way as any other EAS message, including a time-limited recording that can be passed as a file to downstream

equipment and that does not require unlimited activation times and streaming protocols.
        - Use a national test code and specify that it emulate EAN behavior with the exception of the text presented to the public.
        - Use the actual EAN code, without modifying its behavior at all.
- The Commission's rules include references to the NPT, but some may take the view that they do not provide specific enough guidance on how EAS equipment must process the NPT. If more detail is needed, what operational requirements should the Commission specify for NPT activations…
    - If the NPT is the event code used to test the operation of an EAN then the rules need to specify that the NPT operates identically to an EAN, including the priority, with the exception than an EAN has higher priority than an NPT.
- In addition, we seek comment on whether it is technically feasible to use the NPT or some other national test code, particularly with respect to existing EAS equipment. For example, would existing EAS equipment require software upgrades in order to process the NPT or would new equipment be required? What, if any, expense would be involved with such reprogramming or software upgrades?
    - EAS Encoder/Decoders would require software updates to make the NPT follow the same operation as an EAN. Cost would be minimal.
- If the Commission, in consultation with FEMA and other Federal government agencies, decided to use the NPT or another national test code in future tests, what other actions would the Commission need to take to ensure that use of the alternative code would allow the EAS community to assess how well the EAS would work in a real national emergency?
    - If EAS Encoder/Decoder's are reprogrammed to treat the NPT identically to an EAN, and FEMA originates the NPT correctly, no other changes should be required.
- We seek comment on how the duration for a national EAS test would affect EAS equipment's ability to deliver an EAN. Is there a minimum amount of time a test has to run to allow EAS equipment to operate properly? Should the length of the test be predicated on the ability of EAS equipment to operate for longer than two minutes? How would this affect the Commission's Part 11 rules? Are there any downsides to a test that exceeds two minutes in length?
    - Each Encoder in the EAS propagation daisy-chain may shorten the duration of the EAN received by them. If each Encoder/Decoder first receives the three EAN header bursts (6 seconds), then begins sending it's own header bursts (another six seconds), followed by a one second pause, an 8 second Dual-Tone, and another one second pause (10 seconds) before patching audio from its input to its output, a significant delay can be accumulated through even a few EAS Encoder/Decoders.
    - Unlike other EAS events that can be recorded in advance and passed to distribution as a complete package when the distribution components are prepared to handle them, the EAN requires a live pass-through audio channel or stream. The result of this is that downstream equipment with propagation latencies or warm-up periods can miss the beginning of the EAN audio.
    - The prescribed over-ride of EAS message timeouts (timeout and reset to monitoring) can not be tested while using a voice message less than the normal two-minutes. For this reason alone, EAN testing should exceed the two minute threshold plus any predicted propagation delays through the EAS Encoder/Decoder chain.