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The following comments from Trilithic Incorporated are submitted in response to the Federal Communication Commission's solicitation of comments to its Third Further Notice of Proposed Rulemaking (May 2011).

Clarification:

Throughout the FNPRM there are several terms and expressions that we believe different parties will understand differently. In order to aid in understanding our viewpoints, we offer our own understanding of these terms below:

CAP: A CAP message is an XML (text) based “package” in which various information pertaining to an emergency can be placed. It tends to be very general about the contents within the CAP structure to allow flexibility. Implementation often requires a “profile” that provides specifics on the contents in order to guarantee contents can be understood (by human or machine). The CAP protocol does not include a standard that defines how the message is transferred or stored.

EAS: The term EAS refers specifically to the SAME based messaging described in 47 CFR part 11, therefore an “EAS message” would inherently be an audio message containing bursts of FSK and (optionally) an Attention tone and Voice message. We believe some confusion may have resulted by the use of the term EAS to mean emergency messaging in general.

CAP Formatted EAS message: This phrase may be one of the key contributors to the misunderstandings associated with CAP integration into EAS. A CAP message can be translated into an EAS (IE: SAME) message (with a great deal of information loss), and an EAS message can be translated into, or even contained in the audio portion a CAP message, but an EAS message cannot be “CAP formatted” in our opinion. We would like the Commission to clarify the definition of this term.

“Configure their networks to receive CAP-formatted alerts”: We believe this phrase to be at best, misleading. It would seem to indicate that an EAS participant need only change a configuration parameter or rewire some device to suddenly receive and process CAP messages. This may be as a result of the belief that a CAP message can be carried over audio and still be a “CAP formatted alert”, but other language suggests that it was known to require an internet-like connection to receive CAP alerts. Our understanding is that in order to receive CAP formatted alerts, an EAS participant must be capable of receiving a digital data source such as Internet or a Satellite data stream, that this source must deliver CAP data in a standard format that can be translated into EAS, and that the EAS participant must have hardware capable of ingesting and translating the ingested CAP messages.

Intermediary Device: We believe there are two types of CAP to EAS Intermediary devices with differing capabilities:

In one case a device can ingest CAP message and produce EAS FSK, Attention Tone, and Voice sufficiently to activate the input circuitry of a connected EAS Decoder. In this case the EAS Decoder does not realize it is connected to a CAP device, and treats the input the same as if it was an “off-air” monitoring assignment.

In the second case, the CAP to EAS Intermediary device and the EAS Encoder/Decoder are designed to work together, allowing the enhanced CAP text, and the Governor’s Must Carry flag to be processed by the EAS Encoder/Decoder. Functionally this Intermediary Device and EAS Encoder/Decoder combination can perform as a single, integrated device.

Next Generation EAS: The meaning of this phrase is likely different for any two parties, however it seems clear to us that a CAP system can only be considered to be “Next Generation”. The ability to send messages over digital networks, that these messages can contain and convey a great deal more information than the current SAME based EAS, that the content of these messages are not limited by protocol and therefore can grow over time, and that the messages and delivery networks can be adapted to virtually any information distribution system, can not be considered to be the same old EAS system.

Comments:

FCC 11-82_I. 2 Obligation to Accept CAP Messages (response):

We agree that the Commission should revise the part 11 rules to convert CAP messages into EAS Protocol compliant messages according to ECIG recommendations.

We suggest that EAS participants should be allowed to use intermediary devices provided they, in combination with the EAS Encoder/Decoder being used, are capable of meeting Gubernatorial Must-Carry obligations and, in the case of EAS participants providing video services, that the CAP text information specified in the (ECIG) CAP EAS Implementation guide is able to be presented to viewers.

FCC 11-82_I. 2 EAS Equipment Certification (response):

We suggest that ultimately, CAP conformance testing should be fully integrated into the existing part 11 certification scheme, however, in the interim the Commission should allow units qualified under the FEMA Conformity Assessment Program to be deployed. Once the Commission has fully determined equipment requirements, a decision can be made as to whether such devices should be recertified or grandfathered.

FCC 11-82_I. 2 CAP Messages Originated by State Governors (response):

We fully agree with the Commission's conclusion that the obligation of EAS Participants to receive and transmit CAP-formatted messages initiated by state governors only applies to the extent that state governors have formatted such CAP messages using FEMA's standards for federal CAP messages.

We do not believe it is necessary to adopt additional Origination or Event codes in order to accommodate messages from State Governors, however, such additions would not be difficult to accommodate in our existing systems.

We fully agree that the Commission should define the geo-targeting element of mandated gubernatorial alerts in Part 11 in the same way as the Commission defines the location provisions in the current EAS Protocol. This allows State Governors the ability to geo-target messages as well. In addition, Use of current location codes in addition to the CAP EAS-Must-Carry flag (as proposed in the ECIG CAP EAS Implementation Guide) provides the protocol requirements to accommodate adjacent states, while permitting Governors to originate messages limited to their own states.

FCC 11-82_I. 2 Revising the Procedures for EANs (response):

We fully support and encourage the simplification of the procedures for the EAN. We believe this to be absolutely necessary for a fully successful and standardized implementation of the EAN message. We also believe this to be necessary if CAP is to be used to carry the EAN message.

We fully support the deletion of sections 11.16, 11.42, 11.44, and 11.54(a), (b)(1)-(8), (10), (12), and 11.54(c) of the rules, with the exception of 11.44 (a) which should be retained or moved to another section (unless it is already contained elsewhere). 11.44 (a) states "A national activation of the EAS for a Presidential message with the Event code EAN as specified in §11.31 must take priority over any other message and preempt it if it is in progress."

Comments on Third Further Notice of Proposed Rulemaking, EB Docket 04-296, FCC-11-82 (FR 2011-15119)

We support the elimination of the EAS Handbooks. Currently the regulations instruct the EAS participant to (paraphrased) "...follow the instructions in the EAS Operating Handbook". This occurs in many places within the regulations. At a minimum the regulations should be complete, and the Handbooks relegated to informational-only status.

FCC 11-82_I. 2 Miscellaneous Part 11 Revisions Not Related to CAP (response):

We recommend the complete elimination of the Attention Signal requirements. Detection and Demuting outside of an EAS message no longer serve a purpose. The frequency tolerance, harmonic distortion requirements, output level requirements, and additional software/firmware support increase the cost of testing and producing EAS equipment. The public no identifies the FSK bursts with emergency messaging so the Attention Signal is no longer needed as an aural indicator for the public.

Introduction of CAP into the existing framework of EAS significantly improves access to emergency information to persons with disabilities for several reasons, particularly if the CAP Description and Instruction fields are to be displayed on video services. Integration benefits include:

- Encourages the use of CAP origination, which (potentially) has a much broader public notification path (cell phone, internet, signs, sirens, etc) affording a wider base of messaging services both audible and visual. Failure to incorporate CAP messages into EAS may discourage emergency personnel from sending CAP messages
- Provides meaningful text for the hearing impaired. This assumes that the Commission chooses to require (or at least allow) CAP text to be displayed by EAS equipment.
- Is capable of multiple language message dissemination. This also is contingent upon CAP text being applied to EAS display.

FCC 11-82_III. Scope of CAP-Related Part 11 Revisions (response):

In Paragraph 24 the Commission states "Because the Next Generation EAS is not yet operational, we focus our efforts here on revising the Part 11 rules to accommodate the processing of CAP-formatted messages within the existing EAS parameters". We seek clarification on the meaning of the phrase "processing of CAP-formatted messages within the existing EAS parameters" used by the Commission. We believe that, whether intentionally or not, the Commission has already mandated the implementation of "Next Generation EAS". By ordering that EAS Participants be required to receive and process CAP formatted alerts, the Commission has implied that EAS participants must have equipment capable of receiving, dissecting, and outputting these alerts in some manner. By extension, EAS participants must also be capable of receiving a digital transport (Internet, Satellite, etc) that is capable of carrying a CAP formatted message. We agree that the existing EAS/SAME format should continue as a parallel path for message dissemination. We note that the ECIG CAP-EAS implementation provides for the translation of an IPAWS compliant CAP message into EAS Protocol, insuring duplicate checking and geographic targeting can be accomplished consistently between the two protocols.

In Paragraph 27 the Commission states “Our tentative view is that while the SAME protocol used by the legacy EAS is more limited regarding the information it can convey than CAP, the many benefits of maintaining the legacy EAS ... continue to apply today. In Paragraph 28 the Commission tentatively concludes that the legacy EAS, including the use of the SAME protocol, should be maintained until the Next Generation EAS is deployed and ready to replace, or operate in parallel with the existing EAS. We believe that by maintaining the current order to process CAP formatted messages, and by adopting the ECIG CAP-EAS recommendations, the commission will in essence already be putting in place “Next Generation EAS” with Legacy EAS operating in parallel (CAP/EAS message generation notwithstanding). We suggest that CAP message origination does not necessarily need to be defined by the Commissions rules, provided the message format and distribution are clearly defined. Few EAS Encoders are ever used to originate emergency messages. As observed by the Commission, the implementation of the ECIG CAP-EAS recommendations provide a means to convert CAP messages into EAS protocol, therefore organizations needing to originate emergency communications would be best served originating a CAP message for near-simultaneous communication over both CAP channels and EAS.

In Paragraph 29 the Commission asks “How long will it take to switch to a CAP-centric EAS system?” This question is asked in light of perceived deficiencies of the EAS System and in consideration of retiring the current SAME based EAS system. It is our opinion that the best answer to the question is “wait and see”. By putting in place an the infrastructure and protocols for CAP messaging, the Commission (and partners) are laying the foundation for a natural, and likely rapid transition from SAME to CAP. We believe that by observation alone, the Commission can determine a time in which few SAME messages are being acted upon (because they have already been received via CAP). At that time the Commission can truly evaluate any deficiencies in the parallel (CAP and SAME) implementation and rule accordingly. We believe that a “CAP-Centric EAS System” will happen on its own as a result of the rules currently considered, and that only then can the rules be efficiently “tweaked” to finalize the transition.

FCC 11-82_III. Obligation to Accept CAP Messages (response):

In response to Paragraph 34; We absolutely believe it is necessary for the Part 11 rules to include, either in the rules or by reference, a standardized method of decoding and translating CAP-formatted messages into SAME-compliant messages. We strongly recommend that the ECIG CAP-EAS Implementation be used as the basis for said rules. It is absolutely necessary to have a standard CAP to EAS translation in order to:

- Detect duplicate messages when such messages are received in both the CAP and EAS domain.
- Provide CAP originators with the information needed to determine a messages presentation in the EAS domain.

In Paragraph 34, the Commission asks “Given that CAP-formatted messages can only convey audio messages as audio files or links to alternate sources (such as URLs) for streaming audio, is it technically feasible to encode that portion of a CAP-formatted message in a SAME-compliant message for rebroadcast to monitoring stations?” The wording of the question, as well as many other hints in the phrasing of the NPRM, may indicate a disconnect between the Commissions thinking and the understanding of the general public. We believe that the common understanding of the CAP message audio is that it will contain a voice message only. No SAME FSK would be included, nor is it necessary. The IPAWS Profile and the ECIG CAP-EAS Implementation provide the information necessary for CAP/EAS equipment (including intermediary devices) to produce the appropriate SAME FSK in a manner similar to the way they re-create the FSK in existing Encoders. The Commission also asks “would the audio portion of CAP messages be limited to EAS Participants that initially receive such messages via IP-based connections?”. The answer to this is “No”. The recipient of the CAP message would include the audio portion of the CAP message (as well as the SAME Protocol FSK) when rebroadcasting. Downstream EAS Decoders would then receive a true EAS message that includes the audio from the CAP message. CAP producers would need to be aware that only the first two minutes of the audio message will “air” in the EAS domain. It is our opinion that this approach does not add expense beyond that already imposed by receiving and processing CAP messages for public consumption.

In Paragraph 35 the Commission asks “Should the Commission directly regulate CAP-to-SAME conversion, or is it enough to specify in section 11.56 that EAS equipment must be capable of outputting CAP-formatted messages in EAS protocol-compliant form?”. We believe that the Commission need not directly regulate the CAP-to-SAME conversion, but it must refer to a document “presumably the ECIG CAP-EAS implementation” that specifies the conversion process. Only by doing so will the necessary uniformity of the EAS Protocol Text be achieved between CAP and EAS.

FCC 11-82_III. CAP-Related Monitoring Requirements (response):

In response to Paragraph 38; We believe the statement “The CAP message will be wholly contained within the RSS file’s “description” field” is both inaccurate and undesirable. Typically an RSS feed provides an index to more detailed messages, along with links to these messages. This conserves bandwidth by allowing pre-filtering of information prior to downloading. The actual CAP messages would then be retrieved using the links in the RSS feed.

In response to Paragraph 39; We agree with the Commissions conclusion that EAS Participants should monitor FEMA’s IPAWS RSS feed. The requirement to monitor the feed, the FEMA particulars that definite the feed, and the CAP, IPAWS, and ECIG documents are sufficient to capture the technical requirements for monitoring the feed.

In response to Paragraph 39; The use of RSS is ideal for CAP transport over Internet Protocol, and does not inhibit the use of links for audio (and other) resources. An RSS interface is particularly conservative of Internet bandwidth and does not present a greater technical challenge than any other CAP over IP methodology. Given a requirement for IP based transport of CAP messages the costs of implementation are fairly flat, regardless of the protocol chosen, though RSS is likely to cost less from an design standpoint.

In Paragraph 40 the Commission states “Specifically, we propose that EAS equipment should only be required to employ the same monitoring functionality for state CAP messages that are used for federal CAP messages (*i.e.*, RSS).” While we agree in spirit that a single, uniform protocol is desired for the delivery of CAP messages, we believe the Commission should consider that RSS is essentially an Internet-Only protocol. Unidirectional data feeds can not provide an RSS feed. For this reason, if RSS is adopted as a standard, we believe that at a minimum, the Commission should also adopt, or allow the use of a unidirectional (EG: satellite) based protocol for the dissemination of CAP messages. The CAP protocol itself allows for this possibility by identifying the in-line encapsulation of resources (dereferencing containing audio, etc without using internet links). We do support the standardization of transport protocols, and for IP based CAP we prefer RSS.

Once FEMA adopts an RSS feed and it is properly tested, adoption of the same RSS standard for State feeds would greatly enhance the scalability of CAP EAS, reduce cost for (possibly) every EAS participant since they would not need to upgrade every time a new feed was introduced, and reduce or eliminate the need for EAS manufacturers to chase down, implement, and test new protocols. In addition it would likely increase the reliability of CAP processing by decreasing the variables introduced with each new feed. The machine-to-machine interface requirements are already well established and absolutely should not be included in the Commissions rules beyond, perhaps, the inclusion of an Ethernet port requirement. Otherwise the necessary interfaces span the gamut of Internet, Intranet, and security protocols. EAS Participants will best understand their own networks and interface needs.

FCC 11-82_III. Next Generation Distribution Systems (response):

In Paragraph 42 the Commission states “Accordingly, the Commission stated that “should FEMA announce technical standards for any Next Generation EAS alert delivery system, EAS Participants must configure their networks to receive CAP-formatted alerts delivered pursuant to such delivery system, whether wireline, Internet, satellite or other, within 180 days after the date that FEMA announces the technical standards for such Next Generation EAS alert delivery.” In addition the following quote from the Second Report and Order is given “all EAS Participants must be able to receive CAP-formatted EAS alerts ... after FEMA publishes the technical standards and requirements for such FEMA transmissions.” In Paragraph 44 the Commission states “The Commission’s intent was not to permit FEMA to create or modify existing requirements via publication or adoption of a technical standard”. We do not understand how the Commission can expect EAS Participants to be able to receive messages from FEMA, and also expect FEMA to publish standards and requirements for a new message and delivery mechanism, without also expecting that these FEMA standards and requirements will modify existing requirements.

Perhaps the following line from the Commission (in Paragraph 44) sheds some light. “Rather, the Commission’s general intent was to revise the existing Part 11 rules to permit initiation and carriage of CAP-based alert messages over the existing EAS”. Since “carriage of a CAP-based alert over the existing EAS” is not possible, the general understanding of the Commissions rules seems to have been that a new messaging standard would be designed and implemented by FEMA, and that EAS participants were required to do whatever was necessary to process messages according to the new standards.

In Paragraph 44 the Commission states “We seek comment on whether further clarification of the EAS Participants’ obligation to receive and process CAP-formatted EAS messages delivered over Next Generation EAS distribution systems is necessary.” It is our opinion that clarification is needed. We do not believe that “CAP-formatted EAS messages” exist or can exist. In addition, “Next Generation EAS distribution systems” is not clearly defined, though presumably it is a reference to digital data systems.

FCC 11-82_III. Equipment Requirements (response):

In response to Paragraph 46; We believe that the Commissions definition of Intermediary devices should be revised. That some Intermediary devices do not convert CAP to SAME FSK, but rather communicate with the EAS Encoder/Decoder through other (non-audio) means. We believe that Intermediary devices that are (in conjunction with the EAS Encoder/Decoder) capable of handling the Governor Must Carry requirements, and also capable of handling the enhanced text of CAP messages (for Broadcast TV, Cable, and Wireline Video systems) should be allowed.

In Response to Paragraph 47; Intermediary devices can have, but do not inherently have, the same capacity as new CAP-compliant equipment to replace legacy EAS devices. In general, the legacy EAS device and the intermediary device need to be made/modified to communicate to each other.

In response to Paragraphs 49 and 50; We completely disagree with the CSRIC recommendation that EAS Encoders be capable of rendering a fully compliant CAP message. To begin with, CAP messages are designed to be ingested by many technologies, not just EAS Decoders. For Legacy SAME based EAS it makes sense to define the hardware needed to originate messages in strict accordance with physical (FSK, etc) parameters, but CAP is essentially a platform independent messaging format, and can easily be rendered by Emergency personnel using a standard PC or a web based interface (this includes being able to initiate messages from mobile devices). In addition, there is no transport defined for the EAS Encoder to transmit a CAP message. An RSS feed works well for a CAP device to retrieve messages, but is not a suitable mechanism for transmitting a CAP message. Transmitting CAP messages over FSK is not feasible as it could take several minutes, and would have to occur without any audio glitches for the entire transmission. It is our belief that CAP messages should be originated by Emergency Personnel using the tools already available to them. By virtue of the current CAP/EAS mandate CAP-EAS Encoder/Decoders can simply translate those messages into the EAS domain.

In response to Paragraph 51; We still believe that the RS-232 specification for both EAS Encoders and EAS Decoders is unnecessary and should be eliminated.

In response to Paragraph 52; We do not see any utility in the mention of RS232C connections (and 1200 BAUD format) in the current regulations, with or without the addition of other input/output requirements. We have yet to see or hear of any 1200 BAUD RS-232C connections being used for EAS. We suggest complete removal of references to RS-232 communications. While we do not suggest (or discourage) making it a requirement, we expect an Ethernet connection to be the input/output of choice for future (and present) EAS Encoder/Decoders. We fully expect CAP messages to be received via an Ethernet connection.

In response to Paragraph 54; Given the current requirement to receive CAP formatted messages, we do suggest that receiving CAP formatted message and converting them to EAS Protocol Text should be added to the Decoder section of the Commissions rules. Use of intermediary devices should be allowed, at least for currently designed EAS Encoder/Decoders.

In response to Paragraph 57; We strongly recommend that the Alert Text recommended by the ECIG Implementation Guide should be used in lieu of the EAS Header elements for Visual Displays.

In response to Paragraph 58; We agree that duplicate messages should be handled in accordance with the ECIG implementation recommendations.

In response to Paragraph 59; We agree that EAS participants should translate CAP-formatted messages into SAME-compliant messages in conformance with the ECIG Implementation Guide.

In response to Paragraph 60; The rules should be modified to include CAP messages (EG: “a message with the EAN event code that an EAS Participant receives through any input must override all other messages”).

FCC 11-82_III. Miscellaneous Rule Changes Related to Fully Implementing CAP (response):

In response to Paragraph 64; We believe that EAS participants should be allowed to use intermediary devices provided they, in combination with the EAS Encoder/Decoder being used, are capable of meeting Gubernatorial Must-Carry obligations and, in the case of EAS participants providing video services, that the CAP text information specified in the (ECIG) CAP EAS Implementation guide is able to be presented to viewers.

In response to Paragraph 65; We believe that all references to expired effective dates should be removed, and when requirements are identical between (previously) separate participant groups, these groups should be consolidated.

In response to Paragraph 81; We strongly agree with the Commissions decision not to require the rendering of CAP messages.

In response to Paragraph 83-85, and in particular in consideration of the use of enhanced CAP text; We very strongly disagree with the Commissions conclusion that the enhanced text capabilities of CAP should not be presented in the video crawl. This is a very high price to pay for uniformity. We also do not believe the ECIG recommendations endorse this viewpoint. In reference to the Commissions requirements to display a translation of the EAS Protocol Text, the ECIG Implementation guide contains the following remark: “While this requirement is in effect, the CAP messages need to be constructed by Originators in a manner that provides the additional CAP descriptive information without adding redundancy. If the FCC requirement is dropped in the future, then CAP messages SHOULD be constructed to include these relevant details.” We do not believe it was ECIG’s intent to suggest that the requirement should be kept, but rather to accommodate it (out of necessity) while it exists. The EAS Protocol Translation text has long been a blemish in Emergency messaging. In many instances (particularly Amber alerts) this text is close to useless. TV Broadcasters are required to provide the same information in both the audio and video portions of their programming, and CAP text finally provides a mechanism for this. The Commission is already imposing the burden of deploying CAP receiving equipment for EAS participants, It is adding insult to injury to discourage (or prohibit) the use of the superior CAP text. While uniformity is extremely important, providing useful information to the hearing impaired is far more important.

We not only believe that use of the CAP Description and Instruction text elements should be encouraged, if not required, we also believe that the requirement to display a translation of the EAS Protocol Text should be dropped for messages received in CAP format. This requirement shortens the usable length of the more useful CAP text, and (assuming the CAP text is allowed) delays the presentation of that text to the viewer.

FCC 11-82_III. EAS Equipment Certification (response):

In response to Paragraph 94; While we do not make a recommendation as to the certification process, we do believe it is necessary for CAP-EAS equipment to comply with the CAP 1.2 Protocol, the IPAWS profile, and the ECIG recommendations. We agree with the Commissions conclusion to maintain a SAME only output for the EAS. We do not perceive a need for EAS Encoders to ever originate or generate CAP messages.

FCC 11-82_III. CAP Messages Originated by State Governors (response):

In response to Paragraph 120; We do not believe it is necessary to add new Origination or Event codes in order to accommodate messages originated by State Governors. This would have been necessary had the Commission not clarified that only messages received via CAP were expected to comply with these requirements. If the Commission does adopt new codes, we suggest adopting a new Origination code so that State Governors will still have all the current Event codes at their disposal.

In response to Paragraph 122; We believe that State Governors messages should be handled as recommended by ECIG. That EAS Participants should process messages according to their (SAME equivalent) location codes, but over-ride their Event based enables/disables when presented with the CAP must-carry flag. In this way States can coordinate with each other to determine if they are allowed to use adjacent States geographic codes when the must-carry indicator is used.

FCC 11-82_III. Revising the Procedures for EANs (response):

In response to this entire subject/section: We strongly support simplifying the EAN process, removing the use of the EAT as a requirement, and making the EAN process match (as closely as possible) any other EAS message. Paragraph 145 nicely summarizes what we believe the process should be. The EAT code could be retained (and processed just like any other EAS message) for purposes of alerting the nation that the “all-clear” has been given, but given the current confusion it may be necessary to remove the code, thereby removing confusion as to it’s use.