**Before the**

**Federal Communications Commission**

**Washington, D.C. 20554**

In the Matter of )

)

The Emergency Alert System ) EB Docket No. 04-296

) EB Docket No. 15-94

Frank W. Bell )

**Re: 2018 May 15 Emergency Alerting Hearing**

There were a number of subjects raised in this hearing;

# Issues relating to the unfamiliarity of Emergency Managers with IPAWS.

As IPAWS public alerting is complex and different to the experience normally gained prior to such work, it is understandable that this is an issue, especially as IPAWS and WEA are new technologies, and AEA is not yet implemented for TV. It has been suggested that the IPAWS JITC test lab be used as a means of testing alert generating procedures. This is a possible improvement, and the vendors of Alert Origination Software (AOS) may develop training material for users of their products.

# Issues regarding the lack of selective delivery of alerts.

One example given was where an alert was intended for one county, but the whole state was alerted. While it is possible to define polygons in AOS, this is usable in WEA, but not yet for EAS. It is possible to define a county in the header, but I am not aware of any county boundaries that have polygons defined for the limitations of a polygon string that could be added to an improved EAS. Such a polygon string would be usable in vehicle receivers that are integrated with the navigation system so as to be able to determine whether the vehicle was inside the polygon or not. As I recall, there was a filing by Dale Gehman about ten years ago that illustrated this excessive alerting problem, complete with a map example.

Such poor area selectivity means that many recipients are those not intended, and which has a deleterious benefit to those recipients. The implementation of AEA/AWARN would address this for TV receivers, including smartphones that can receive ATSC 3.0, which have not yet appeared on the market. It is also possible to implement such selectivity using HD Radio, within limitations, for receivers that have the capability once such transmission is provided.

Using AEA/AWARN and within the limitations of HD Radio, it would also be possible to selectively send alerts to particular audiences or recipients using the same technology with different codes. One such audience could be First Responders within some defined map area and to particular receiver categories. This then could enable such alerts for exercises to be incorporated into the exercise and so improve the familiarity of Emergency Managers with the Alerting Origination Software usage. The psychology of familiarity in stress situations is relevant. Such “real world” replication aids in training.

While these are operational issues primarily, it is possible to improve the operational results with some technology.

# The Use of Multilingual Alerting

Selective alerting by language choice can be provided for major languages and selected in the consumer receiver with AEA/AWARN. This is possible within the data rate limitations. For alerting with smaller minority languages, it is possible to transmit links for such language streams if there is the funding for the work and that can be assisted with volunteers who are native speakers of such languages. An extended CAP events list for languages that are spoken in more than one nation (plus Japanese) has a draft prepared. This is part of the selective alerting extensions. There is limited capability to provide this with HD Radio, but some improvements are possible. This is a matter that would be best addressed by permissive rule language and some incentive funding which may be a cooperative effort with the broadcaster and the community. Machine language translation may be of assistance, but there may be pronunciation problems. An extension of ASCII that includes a large part of the International Phonetic Alphabet has been drafted. This currently would depend on the human transcription of the speech for such words more correctly being pronounced.

## Issues relating to the lack of restrictions on originators as relevant to the events.

While missile alerts are not currently assigned a code in the U.S. this a use of the EAN code. Apparently, this code is checked for originator authorization. This same authorization level checking could be done in addition to the jurisdiction area checking now performed once such restrictions are defined.

# Issues relating to State Emergency Communications Committees (SECCs).

There were a number of comments regarding SECCs. Sometimes these are voluntary positions that are part time. If the SECCs are responsible to the State Emergency Management Office, then this would provide some degree of independence form the FCC. Having such independence would enable better relationships with the broadcasters and cable and cell carriers. This point was not apparent that I recall.

With adequate funding and staffing and such responsibility, in my opinion it would be significantly better for defining and implementing good and effective State plans, without punitive measures being an important consideration. While currently EAS is an unfunded mandate, the development of selective alerting is not only adding value to the system, it is dividing alerts int three classes. A) Immediate Override, which is possible at present, B) Automation playout scheduled by Encoder/Decoder communication adaptation of the playlist. This also provides for opt-out of alerts for selectivity by suitable consumer receivers. The program content for the opt-out recipients may be a PSA of equal duration, or perhaps advertising at some discount the sales may contract. C) Opt-In of alerts that are probably not provided at present on suitable consumer receivers. The user would have possible an optional control over what B) and C) alerts are received. The voluntary nature of EAS transmission (except for EAN) results in variable coverage, so improvements in selectivity would result in less undesirable program content interruption. Such interruptions should not need to be an exception to a 5-nines (99.999%) SLA (Service Level Agreement) contract., which the B) and C) alerts would avoid. This should encourage greater participation to improve the coverage of the different events.

The selectivity capability may also be applied, with FCC acceptance, to the selective distribution of different versions of advertisements, e.g. to vehicles only, or a different location. This would be of some financial value to such broadcasters, and make the system more economically appealing to CFOs. The AEA/AWARN aspect of ATSC 3.0 provides for such capability using internet access, and it is also possible within the broadcast data stream.

# The Daisy Chain

Currently this is analog on radio. The analog deterioration of the audio is an issue. The very limited data transmission capability is unsuitable for polygon transmission for selectivity. The alert overrides the program on the analog and the HD1 signal currently, so transmitting the message as a chain of broadcasters that are not serving the selected public to broadcaster(s) who do is undesirable. Using AEA/AWARN to transmit the alert and the local radio station serving the selected area to relay this is better. A suggested name is a Digital Daisy Mesh.

# Issues relating to the paperwork relating to checking.

As some mention was made of the amount of paperwork accompanying checking alert distribution, this is an unwelcome time and cost to the reporters and recipients at the SECC. It would be more cost effective to have the Encoder/Decoders report to a recipient application that the SECC has, and this provide reports. The message may be by email, but a definition of the message format would need to be made. Details such as hours since last reboot, unit temperature, software version, etc. as well as the message transmitted and results are important. Such a message definition could also be used for monitor receivers.

# Issues Not Mentioned

There have been a number of false alerts that have come about as a result of software incompatibilities between the originating application, frequently in NOAA Weather Radio, and the passage of the alert in some non-CAP format that is compatible or compliant with World Meteorological Organization data format(s). For example, an error may result in the Test criteria being misinterpreted. In CAP, the status=actual is needed for alert transmission. The implementation of CAP by NWR is a technical and financial matter that may be pertinent to this FCC discussion.

CAP is complementary to other protocols, particularly the EDXL group. While these developments are beneficial, they are at the same time making Emergency Management more computer and internet dependent. A technology that is relevant to Emergency Management that is well used, but outside the CAP silo is Ham Radio. This uses a packet radio protocol AX.25. While hams have participated in “Cascadia Rising” and other exercises, at the same time their packet radio network has been expanding. This is without taxpayer funding. The problem is that AX.25 is not currently able to deliver CAP or EDXL messages. Normally this is not any problem, but in extreme events, the reliability of the internet becomes questionable. While an improved EAS could carry EDXL or other data, the adaptation of AX.25 for such use to bypass failed part(s) of the internet is not likely to be a significant budget item, but could be a critical resource in extreme circumstances.

The implementation of the selectivity capability mentioned above is dependent on consumer electronics designing that in. As consumer electronics is a business category that is of a world scale economically, and with few manufacturers in the U.S., it would be most effective to develop and implement this via standards organizations. This has already been successful with CAP, ATSC 3.0 AEA/AWARN, and the adoption of WEA in other countries. So, the approach of standards that are appropriate for adoption by the ITU is the most favorable for success when the additional cost of implementation of such an optional feature is likely to be quite small. Legacy receivers would continue to receive alerts as at present, until the consumer product replacement cycle phases this improved capability in.

Such a consumer receiver feature could act immediately upon reception of the header to deliver Earthquake Early Warning messages immediately (if selected) instead of waiting for the compression/decompression latency of program digital audio/video. This may be up to two seconds faster than presently possible and be within three seconds of detection rather than the five or more seconds that the present Japanese system takes. P-wave detection for alerting is also relevant for earlier alerting. Some public education (e.g. earthquake warning drills) and social science (e.g. disabled) of these matters is desirable.