**Statement on Behalf of**

**The Mobile Emergency Alert System (M-EAS)**

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**Submitted to the Subcommittee on Economic Development, Public Buildings, and Emergency Management**

**In Support of HR 3300: The FEMA Reauthorization Act of 2013**

**October 31, 2013**

On behalf of the developers of the Mobile Emergency Alert System, we are submitting this statement regarding HR 3300, the FEMA Reauthorization Act of 2013. We strongly support the continued development of the Integrated Public Alert and Warning System (IPAWS), and we applaud the provisions in HR 3300 for establishing requirements that address the remaining gaps and vulnerabilities of the system. We respectfully request your careful consideration of the capabilities offered by the Mobile Emergency Alert System in achieving our common goal of modernizing IPAWS.

## What is Mobile EAS?

The Mobile Emergency Alert System (Mobile EAS or M-EAS) is a next-generation, dual use, public alert and warning system for a mobile, 21st Century America. M-EAS utilizes the backbone of the nation's existing television broadcasting infrastructure and the new technology of Mobile DTV. By using terrestrial broadcasting, M-EAS can deliver rich media content to an unlimited number of mobile phones or other devices without overloading the network. This means high reliability and mass, instantaneous distribution, which is especially crucial in emergency events when cellular networks may be unavailable.

M-EAS was developed by LG Electronics and its Zenith R&D Lab, PBS, Harris Broadcast, and Roundbox. M-EAS is built to the Common Alerting Protocol (CAP) and is designed for seamless incorporation into the Integrated Public Alert and Warning System. The collaborative M-EAS developers conducted a successful pilot project with three public television stations and a commercial station in different regions of the country. The commercial station, WRAL (owned by Capitol Broadcasting Corporation in Raleigh, NC), is the first to move to actual M-EAS

deployment and has a memorandum of agreement in place with the Federal Emergency Management Agency (FEMA) to receive and distribute IPAWS alerts.

M-EAS is delivered through a relatively new service from the nation's broadcasters, called Mobile DTV or MDTV. MDTV requires no additional spectrum, but does require special encoding equipment at television stations, as well as MDTV receivers in mobile phones or tablets. Currently, over 150 U.S. television stations are broadcasting television programming using MDTV. As broadcasters nationwide opt to deploy MDTV along with their regular broadcast services, M-EAS capability can be added with a relatively small incremental increase in cost.

## Alerting for a Mobile America

Alerts from the legacy, Cold War-era Emergency Alert System (EAS) remain a vital source of emergency information. However, the video alerts can only be sent to fixed receivers, *i.e.*, television sets. Unlike legacy EAS alerts, Mobile EAS alerts are delivered to cellphone and tablet devices via Mobile DTV transmission. The M-EAS alerts are displayed along with the programming, and offer a warning sound accompanied by a banner at the bottom of the screen that gives text information of the alert. A voice-over delivering the same warning information as the banner text is also received.

With an M-EAS alert, users are given the option to "click-through" for further rich-media information pertaining specifically to that alert. This rich-media information could include video, radar images and evacuation maps; local news and weather coverage; text information of what to do in a given emergency; photographic or pictorial information of what to do in a given emergency; shelter location information and more. All of these additional information assets are sent as files via the broadcast signal, a one-to-many application that is not susceptible to overload.

## Accessible Alerts and the Affected Population

The unique architecture of M-EAS means that it can offer a multitude of rich-media content. These rich-media alerts can therefore be "versioned" for people with disabilities, access or functional needs, as well as non-English speakers. Built into the device specifications is the ability to "wake up" a device (from sleep mode) to notify users by sound, vibration and light of an emergency that could affect them. Text-to-speech and simultaneous translation can be added to the functionality as well. Section 102(b) of HR 3300 requires that the alert system include some of these functions, and M-EAS capabilities are consistent with this requirement.

Because of E911 requirements, cellphones have built-in location awareness. By utilizing the location awareness of the device itself, and with alert originators

sending geo-specific polygons in their CAP messages, M-EAS is able to ensure that the alert is only activated on devices in the geo-targeted region, consistent with the geographic location goal specified in section 102(b) of HR 3300. This means that people who are not in harm's way are not being disturbed. This granular geo-targeting can help prevent "alert burn-out," which can make people less likely to respond with the appropriate caution to other more imminent threats.

## Future Technologies

Along with 150 or more television stations broadcasting a Mobile DTV signal (and thus positioned to adopt M-EAS capabilities), products that enable consumers to receive Mobile DTV are becoming commercially available. Many are offered in association with Dyle TV, the major broadcaster venture that is transmitting MDTV programming. Recent product announcements include:

- AudioVox launched a Dyle wireless Mobile DTV receiver for iOS and Android devices in October 2013. It receives MDTV programming off-air and retransmits it on a Wi-Fi channel.
- RCA launched an eight-inch Mobile TV tablet (October 2013), which also is compatible with Dyle.
- Elgato offers an adapter for iPhones and iPads for the reception of MDTV, and has added the software to receive the banner portion of the M-EAS alert.
- In partnership with Dyle and MetroPCS, Samsung last year released a cellphone with built-in MDTV.

A cross-section of industries has come together to further the development of M-EAS under the banner of the Advanced Television Systems Committee (ATSC), the technical standards setting organization for digital television for North America and other regions. ATSC adopted the M-EAS technical standard, an extension of the Mobile DTV standard, in March 2013. The ATSC M-EAS Implementation Team (M-EAS ITeam) provides a venue for industry discussions of issues related to the successful roll-out of M-EAS, as well as Mobile DTV in general.

As awareness of M-EAS grows, so too will demand for the service it provides. We expect that this will help drive adoption among device manufacturers to include MDTV and M-EAS in cellphones and tablets as a standard feature. Enabling M-EAS requires a relatively simple firmware update to MDTV-enabled devices.

## Resilient and Secure

Superstorm Sandy brought down 25% of cellular capacity in the whole ten-state region affected by the storm, according to FCC data.[1] Press reports indicated that the impact was even greater in the Tri-State area. Cell towers that were not physically disrupted became inoperable when the electric grid went down. Even cell towers that were intact and had back up power soon ran out of generator fuel. The wireless capacity that remained operable was soon overloaded with people trying to use it.

Nearly all broadcast facilities, however, have back up power with reserves of fuel for generators. Unlike the cell towers, nearly all television and FM radio broadcast transmitters stayed on the air before, during, and after Sandy struck, regardless of whether their grid power supply was functional or not.[2]

As M-EAS utilizes the broadcast infrastructure, it reaps the benefits of this "hardened" system. Because cellphone and tablet devices can be recharged in cars, M-EAS can be classified as non-grid dependent from transmission to reception. This offers flexibility and resilience in emergency alerting that other alerting avenues are unable to provide. Again, the requirement in section 102(b) that the alert system be resilient and secure is very compatible with M-EAS functionality.

## Redundant Mechanisms

There are currently over 327 million cellphones in use in the USA and over 103 million tablet devices. The majority of these devices are connected to the Internet via 3G, 4G, LTE or WIFI, or a combination thereof. Wireless broadband has a hugely important role in emergency communications, but dependence on wireless broadband also brings vulnerabilities.

Currently, cellphones users are alerted to extreme weather conditions and AMBER alerts using the Wireless Emergency Alert (WEA) system. WEA's are 90-character text messages that give vital information regarding an impending threat. WEA alerts save lives, as Damon Penn of FEMA referenced in his written testimony to the subcommittee earlier this month. WEA's were established as a voluntary service by wireless carriers under the Warning, Alert, and Response Network (WARN) Act of 2006.

WEA's are an important addition to the nation's alerting toolbox. As president and CEO of the Association of Public Television Stations from 2001 to 2008, I testified before the Senate and House Commerce Committees in support of the WARN Act, and I served on the Commercial Mobile Service Alert Advisory Committee established by the Act. Like many others, I applaud Congress, the FCC, and the

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[1] *FCC says Hurricane Sandy knocked out 25 percent of cell towers in its path,* The Hill, October 30, 2012

[2] *NYC TV Broadcasters Stay On-Air During Sandy,* TV Technology, November 11, 2012

wireless industry for working together to create the Commercial Mobile Alert System, which generates WEA's.

However, WEA's have serious shortcomings that limit their effectiveness. Their maximum length, 90 characters, is shorter than a tweet. This dramatically limits the amount and nature of the emergency information that they provide to end-users and makes WEA's particularly challenging for people with certain disabilities. Their geo-targeting, currently, is only provided down to the county level, which can mean that many people receive alerts that do not directly affect them.

In many emergency situations, the cellphone networks become overloaded with people searching for additional information or trying to reach loved ones. The Boston bombings are the latest example of this communications vulnerability. Cellular networks are also subject to physical damage and power interruptions, as was the case during and after Superstorm Sandy and the Moore, OK tornados.

In these situations, a cellphone or tablet—while still functional—is not connected to an information source. This is where M-EAS provides a redundant pathway. By keeping the cellphone connected to the broadcast stream, M-EAS can provide current information and alerts to an unlimited number of people in the broadcast area simultaneously. As more people are able to turn to this information source during an emergency event, it will conceivably reserve available cellular spectrum for voice and text communication, which will in turn, allow people to communicate with loved ones and first responders. M-EAS can help to advance the redundancy element specified in section 102(b)(3) of HR 3300.

## Public-Private Partnerships

Public alert and warning through television and radio broadcasters represents a strong and continuing model of public-private partnerships. The legacy EAS has its roots in the earliest days of the Cold War, a partnership between the Presidency and broadcasters to warn the nation in the event of an imminent nuclear attack. Fortunately, that system has never been used for its original purpose.

The same system, however, has been used voluntarily for many decades in partnerships between local broadcasters, Warning Coordination Meteorologists at the National Weather Service, and state and local law enforcement, fire fighters, and emergency managers. Mobile EAS extends this long tradition of cooperation and public service and updates it for the way Americans live and work today.

## Advisory Committee

We support provisions in HR 3300 for the establishment by FEMA of the IPAWS Advisory Committee. Members of the M-EAS development team have served on numerous federal advisory committees and will offer our strong support to the IPAWS Advisory Committee. We applaud the broad approach to membership that the bill requires.

We would note that an earlier advisory committee established by the Chairman of the Federal Communications Commission (FCC) also examined certain alerting issues and future technologies. Mobile EAS was acknowledged in the Communications Security, Reliability and Interoperability Council III (CSRIC III) Final Report to the FCC. Submitted by Working Group 2, the Final Report included the following recommendations:

- *The FCC should encourage the use of open-source software components to facilitate the implementation of alerting, including Mobile EAS alerts, for broadband devices. The FCC should also consider offering incentives for device manufactures to implement the alerting voluntarily.* [3]
- *The FCC should revive CMSAAC [Commercial Mobile Service Alert Advisory Committee*] *to provide recommendations for the next version of CMAS [Commercial Mobile Alert System], taking into consideration the recent advances in mobile devices (i.e., the advent of smartphones), as well as cellular networks (i.e., the ongoing migration to 4G networks) and Mobile EAS (CAP alerts delivered to mobile devices over Mobile DTV broadcasting).* [4]

## M-EAS and IPAWS

There is no single solution to addressing the public alert and warning needs of the nation. IPAWS, as it currently functions, calls upon multiple communication resources in order to reach the largest portion of the affected population. This is as it should be. M-EAS is a powerful upgrade to this network of networks that offers an additional robust, resilient, redundant communication avenue to complement the existing system, filling the gaps where they exist. M-EAS helps make a good system great. We urge the Subcommittee to ensure that HR 3300 encourages the deployment of this important alerting technology.

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[3] CSRIC III WG2 Final Report, 19th February 2013. Page 52, section 7.4 – Device Manufacturers

[4] CSRIC III WG2 Final Report, 19th February 2013. Page 55, section 7.8 – Future Alert Dissemination Technologies