

FUTURE OF EMERGENCY ALERTING

HEARING

BEFORE THE
SUBCOMMITTEE ON COMMUNICATIONS AND
TECHNOLOGY

OF THE

COMMITTEE ON ENERGY AND
COMMERCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTEENTH CONGRESS

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CONTENTS

	Page
Hon. Marsha Blackburn, a Representative in Congress from the State of Tennessee, opening statement	1
Prepared statement	3
Hon. Michael F. Doyle, a Representative in Congress from the Commonwealth of Pennsylvania, opening statement	4
Hon. Greg Walden, a Representative in Congress from the State of Oregon, opening statement	5
Prepared statement	6
Hon. Frank Pallone, Jr., a Representative in Congress from the State of New Jersey, opening statement	6
WITNESSES	
Sam Matheny, Chief Technology Officer, National Association of Broadcasters	9
Prepared statement	11
Farrokh Khatibi, Ph.D., Director of Engineering, Qualcomm Technology	20
Prepared statement	22
Christopher Guttman-McCabe, CEO, CGM Advisors, Llc, On behalf of Advanced Computer and Communications, LLC	31
Prepared statement	33
SUBMITTED MATERIAL	
Statement of the American Cable Association	63

FUTURE OF EMERGENCY ALERTING

WEDNESDAY, MAY 17, 2017

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:00 a.m., in room 2123, Rayburn House Office Building, Hon. Marsha Blackburn (chairman of the subcommittee) presiding.

Present: Representatives Blackburn, Lance, Shimkus, Latta, Guthrie, Olson, Bilirakis, Johnson, Long, Flores, Brooks, Collins, Walters, Costello, Walden (ex officio), Doyle, Welch, Clarke, Eshoo, Butterfield, Matsui, McNerney, and Pallone (ex officio).

Staff Present: Ray Baum, Staff Director; Chuck Flint, Policy Coordinator, Communications and Technology; Adam Fromm, Director of Outreach and Coalitions; Gene Fullano, Detailee, Communications and Technology; Giulia Giannangeli, Legislative Clerk, Digital, Commerce, and Consumer Protection/Communications and Technology; Kelsey Guyselman, Counsel, Communications and Technology; A.T. Johnston, Senior Policy Advisor, Energy; Lauren McCarty, Counsel, Communications and Technology; Alex Miller, Video Production Aide and Press Assistant; Dan Schneider, Press Secretary; Hamlin Wade, Special Advisor, External Affairs; Everett Winnick, Director of Information Technology; Jeff Carroll, Minority Staff Director; Alex Debianchi, Minority Telecom Fellow; David Goldman, Minority Chief Counsel, Communications and Technology; Jerry Leverich, Minority Counsel; Lori Maarbjerg, Minority FCC Detailee; Dan Miller, Minority Policy Analyst; Matt Schumacher, Minority Deputy Press Secretary and Digital Director; and Andrew Souvall, Minority Director of Communications, Outreach and Member Services.

OPENING STATEMENT OF HON. MARSHA BLACKBURN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE

Mrs. BLACKBURN. The Subcommittee on Communications and Technology will now come to order. And I recognize myself for 5 minutes for an opening statement.

I do want to welcome each of you and say good morning because it is a good morning here in D.C., and welcome you to our hearing, the “Future of Emergency Alerting,” and to think about how important this topic is.

One data point that we should each celebrate is that the first abducted child to be rescued by an AMBER Alert in 1998 is about to

graduate from high school, and in that thought, we extend our congratulations to Miss Rae Leigh Bradbury of Fort Worth, Texas, who was that first child who was rescued by an AMBER Alert.

I do want to thank our witnesses that are here today. This committee's commitment to advancing public safety communications is well established. Recently, FirstNet announced the award of a contract to AT&T that will bring state-of-the-art interoperable broadband communications to our Nation's first responders. The legislation that got us there reflects the bipartisan work of this committee under Chairman Walden's leadership, and we thank him for that leadership.

The committee examined Next Gen 911 services and listened to testimony regarding the challenges and benefits of bringing the robust capabilities of IP-based technology to our Nation's public safety answering points.

This morning, we have an opportunity to hear about a third critical component of public safety communications, which is emergency alerting. Outfitting first responders with the capabilities of broadband communications is essential. In those times when catastrophe looms in the lives of hundreds, thousands, or maybe even millions are at risk or a child is missing, the necessity of ensuring the best available tools are available to local, state, and federal authorities to alert the public cannot be understated.

We all know the stories from tornadoes that are ripping through communities, hurricanes that devastate the coast, earthquakes, even acts of terrorism that weigh heavily on our collective consciousness of just how dangerous the world can be. Where do we find comfort? With the knowledge that those that have dedicated their lives to protecting ours are able to notify us and steer us from harm's way.

How do they go about doing this? This morning, we will hear about the Emergency Alert System, EAS, a broadcast-based mechanism that has been around for decades and serves as the Nation's primary alerting tool.

Recently, FEMA and its partners performed a nationwide test, the second in history. We will hear about the outcome and the lessons learned. We will be introduced to a new television broadcast transmission standard, ATSC 3.0, that the broadcast television industry has sought authorization from the FCC to deploy. Among other things, it appears to offer capabilities that could bring significant improvements to emergency alerting. I would like to understand what those are and the impact it will have on EAS.

We will hear about wireless emergency alerts, the mechanism that brings us alerts through our mobile devices. Mr. Shimkus was the lead sponsor of the WARN Act, the legislation that established that mechanism in 2006, and we thank him for that leadership. Since then, we have come to increasingly rely on our smartphones.

Today, we will hear how continued technological innovation promises to make WEA a more significant component of alerting.

Finally, we are going to explore the role of social media. We have seen firsthand the power of Twitter and Facebook, as well as others in this space. Yet while social media has been used as a tool by public safety, there are concerns regarding such things as trustworthiness and security.

Having the most effective means to reach our citizens in times of emergency is a goal we all share. Today's panel will inform us on what is and what might be as the Nation's alerting capabilities evolve.

I now recognize the subcommittee ranking member, Mr. Doyle, for 5 minutes for an opening statement.

[The prepared statement of Mrs. Blackburn follows:]

PREPARED STATEMENT OF HON. MARSHA BLACKBURN

Good morning and welcome to the Communications and Technology Subcommittee's hearing titled: the "Future of Emergency Alerting." How important a topic is this? The first abducted child to be rescued by an Amber Alert back in 1998 is about to graduate from high-school. Congratulations to Ms. Rae Leigh Bradbury of Fort Worth. And let me thank our witnesses for appearing here today to offer your expertise.

This Committee's commitment to advancing public safety communications is well established. Recently, FirstNet announced the award of a contract to AT&T that will bring state-of-the-art interoperable broadband communications to our Nation's First Responders. The legislation that got us there reflects the bipartisan work of this Committee under Chairman Walden's leadership. The Committee examined Next Generation 911 services and listened to testimony regarding the challenges and benefits of bringing the robust capabilities of IP-based technology to our nation's Public Safety Answering Points. This morning we have an opportunity to hear about a third critical component of public safety communications—emergency alerting.

Outfitting first responders with the robust capabilities of broadband communications is essential. In those times when catastrophe looms and the lives of hundreds, thousands, even millions—are at risk or a child is missing, the necessity of ensuring the best available tools are available to local, state and federal authorities to alert the public cannot be understated.

We all know stories—tornadoes ripping through the heartland, hurricanes devastating our coasts, earthquakes, even acts of terrorism weigh heavy on our collective consciousness of just how dangerous the world can be. Where do we find comfort—with the knowledge that those that have dedicated their lives to protecting ours are able to notify us and steer us from harm's way.

How do they go about doing this?

This morning we will hear about the emergency alert system—EAS—a broadcast based mechanism that has been around for decades and serves as the nation's primary alerting tool. Recently, FEMA and its partners performed a nationwide test—the second in its history. We will hear about the outcome and lessons learned.

We will be introduced to a new television broadcast transmission standard—ATSC 3.0 that the broadcast television industry has sought authorization from the FCC to deploy. Among other things, it appears to offer capabilities that could bring significant improvements to emergency alerting. I'd like to understand what they are and how they impact EAS.

We will hear about Wireless Emergency Alerts—the mechanism that brings us alerts through our mobile devices. Mr. Shimkus was the lead sponsor of the WARN Act, the legislation that established that mechanism in 2006. Since then we have come to increasingly rely on our smart phones. Today we will hear how continued technological innovation promises to make WEA a more significant component of alerting.

Finally, we will explore the role of social media. We have seen first-hand the power of Twitter and Facebook as well as others in this space. Yet, while social media has been used as a tool by public safety, there are concerns regarding such things as trustworthiness and security.

Having the most effective means to reach our citizens in times of emergency is a goal we all share. Today's panel will inform us on what is and what might be, as the nation's alerting capabilities evolve. Thank you.

OPENING STATEMENT OF HON. MICHAEL F. DOYLE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Mr. DOYLE. Thank you, Madam Chair, and I want to thank the witnesses for being here today. I believe emergency alerts are a critical issue for our country and our constituents, and I look forward to the hearing today.

Advances in emergency alerts have enabled greater flexibility, targeting, and effectiveness, and I am proud of the legislation that was passed out of this committee and has been adopted by industry and consumers alike. Wireless alerts provide detailed and timely messages to the devices that we carry and keep close to us every moment of the day.

Additionally, I am happy to see a representative from the broadcasters here. The commitment that broadcasters have had to emergency alerts and local reporting in times of emergency is commendable. For far too long this has been the only way that people have been able to get information about emergencies and events in their regions.

I will be interested to hear about the impact the new proposed television standard could have on broadcast alerts. That being said, I still have concerns about this proposed transition to a new broadcast standard and the impact it could have on working families and seniors.

The last time we changed broadcast standards, Congress, the FCC, and the Department of Commerce partnered with industry to inform people and ensure that citizens were not left behind by a change in technology. As we embark on this next transition, it is critical that we work together to do the same thing.

That being said, I am concerned about the timing of this hearing. The FCC, at its open meeting tomorrow, will vote to advance an order that will roll back essential rules that protect and promote a free and open internet. There are already 1.6 million comments on the record.

This committee has yet to hold a public hearing at this Congress to address the proposed changes, nor has this committee held an oversight hearing of the FCC itself, one of the primary agencies this subcommittee is charged with overseeing. This issue is one of many that this subcommittee should be discussing with the Commission.

Since the Commission is made up of unelected appointees, as the majority repeatedly pointed out over the last 8 years, it is critical that they be held accountable by Congress.

Last Congress, this subcommittee had no trouble bringing the FCC up here to testify, with some commissioners joking that they should receive frequent flyer miles for the frequency of their visits. Now, with the Commission on the brink of considering an enormously unpopular and ill-advised proposal that could have far-reaching implications on the most innovative part of our economy, it seems irresponsible not for Congress to provide the much needed oversight.

Ranking Member Pallone and I have recently sent a letter to the Commission requesting that they extend the comment period for open internet NPRM. I am concerned that denying citizens and

stakeholders sufficient opportunity to comment on this proceeding will only prevent the Commission from seeing how deeply unpopular and ill-advised this course of action is.

Additionally, along with my colleagues Anna Eshoo and Doris Matsui, we recently sent a letter requesting a hearing on the proposed Sinclair-Tribune merger. This merger, coupled with the FCC's recent action to reinstate the UHF discount, has the potential to enormously increase consolidation of media ownership in this country.

It is my hope that the majority and Chairman Blackburn will work with us to schedule a hearing to address the issues surrounding this proposed merger.

Madam Chair, I would like to ask unanimous consent that a letter from the American Cable Association be placed in the record.

Mrs. BLACKBURN. So ordered.

[The information appears at the conclusion of the hearing.]

Mr. DOYLE. Thank you.

And with that, I will yield back my time.

Mrs. BLACKBURN. The gentleman yields back.

At this time, I recognize the chairman of the full committee, Mr. Walden, for 5 minutes.

OPENING STATEMENT OF HON. GREG WALDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. WALDEN. I thank the chairman for her leadership on these and other issues involving communications.

I want to strike out a little personal privilege here to recognize and commend our long-time counsel on the subcommittee, Mr. David Redl. The announcement that the administration intends to appoint him to head up the NTIA, that announcement came out last night. He has been an incredibly valuable part of our efforts on communication law, and I think we owe him a round of applause for his new endeavor.

And he is not here. Appropriately he is hiding out in the back, I think, but David has done a terrific job, so thank you, David.

I think I can say without a doubt I am the only chairman of the Energy and Commerce Committee that has ever actually wired in an emergency alert system. Having been a radio station owner and operator and full engineer from time to time, I am very familiar with EAS and its predecessor, the EBS, and the importance of the work that has been done over the years to provide emergency communication to our citizens.

I want to commend Mr. Shimkus, who has gone up to the other hearing, I believe, for his work in transitioning America's laws over into the wireless world as well, where we communicate. Well, actually, radio was the original wireless world.

Today, we are going to look at all of this and look forward. As you know, our work, in a bipartisan way, Ms. Eshoo and I, moving forward on the spectrum auction that allowed the facilitation of the creation of FirstNet, which also funded it when the auction was successful.

As we move forward, we want to make sure that our first responder community and the citizens that they serve and protect

have access to the latest technologies and that that is an evolving course, not something that is just simply locked in.

We have come a long way since the 1950s with EBS, and now we are into this new age. And we need to make sure that Federal policy doesn't inhibit technological advancement, and we need to make sure that we are providing the help that our first responders need and that broadcasters use and cablecasters and others when it comes to making sure that people are notified.

So I look forward to your testimony today. I thank the chairman for her leadership on this subcommittee. And with that, I yield back the balance of my time.

[The prepared statement of Chairman Walden follows:]

PREPARED STATEMENT OF HON. GREG WALDEN

Today's hearing will examine the future of emergency alerting system and the mechanisms used to provide the public with life-saving information. Emergency alerting has come a long way since it was established in 1951, the Integrated Public Alert and Warning System now reaches people via broadcast, cable, satellite, and mobile devices. I look forward to our witnesses giving us a better picture of the successes and advances of this life-saving technology.

Back in December the state of Oregon, specifically, my district was hit with a severe storm and flooding. Emergency alerting was there to notify Oregonians who were in the path of the storm. As a result, my constituents were given time to prepare and remove themselves from potential danger. Providing emergency alert and warning information to the public before, during, and after incidents and disasters is a key component to our emergency system.

Every one of us has had a natural disaster, extreme weather, or AMBER alert occur within our district, countless lives have been saved due to emergency alerting. Alerts are a critical part of our emergency infrastructure and they have changed significantly changed over the last 20 years. Today, there are different delivery mechanisms being implemented simultaneously which create the tools that are essential to saving lives.

We are committed to seeing the alerting systems be both more effective and responsive to all communities, particularly those that have been historically underserved. As the world changes and becomes more interconnected our emergency alerting delivery mechanisms must continue to grow and work together.

As technology continues to advance, authorities can deliver alerts simultaneously through multiple communications devices reaching as many people as possible to save lives and protect property. It is important to advance current and future emergency alerting as we move forward in a rapidly changing world. I look forward to hearing your testimony and how to foster innovation of this important technology. Thank you for being here this morning.

Mrs. BLACKBURN. The gentleman yields back.

Would anyone like the balance of Mr. Walden's time?

No one seeking that time, I recognize Mr. Pallone for 5 minutes.

OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Madam Chair. And I also want to thank you and our ranking member, Mr. Doyle, for having this important hearing today.

But before I turn to the matter of the hearing, I wanted to quickly address FCC's efforts to strip away consumers net neutrality protections at tomorrow's FCC meeting. FCC Chairman Pai has proposed a plan that would kill net neutrality, and the chairman's proposal will have a chilling influence on our democracy, cut away

at our connections with each other, and limit economic opportunities for the future.

It is no wonder that more than 1 million comments have already been submitted, and I would urge the Commission to listen to the American people and reconsider this misguided approach.

Getting back to today's hearing, President Truman created our Nation's first emergency alert system in 1951, in part, to ensure Americans will be prepared in the event of a nuclear strike. It is hard to overstate the importance of emergency alerts, whether it is preparing us for the impending landfall of a devastating hurricane, telling us to seek shelter from a tornado, or letting us know there is an active shooter nearby, getting up-to-the-minute information saves lives. And the need for alerts, unfortunately, is now greater as we face the sobering realities of climate change and as mass shootings appear more frequently than ever.

The people in my district know this too well. The emergency alerts that were sent out ahead of Superstorm Sandy was one important way officials helped people along the New Jersey shore evacuate and prepare. Going above and beyond just passing along alerts, one radio station called the RAT stayed on the air during the storm to help reunite families and get people to safety.

Alerts also helped to get the word out last year when a bomb was detonated in Seaside Park, New Jersey, and several more bombs were found at a train station in Elizabeth. Authorities in New York and New Jersey used mobile alerts to enlist the public's help to find the suspect.

Now with the advent of new technologies, Americans deserve better, more detailed information to help keep them safe wherever they are when disaster strikes.

But new technologies won't save lives if they aren't useful and available to everyone. We need to ensure existing systems are free from interference, and we must test and evaluate these systems to make sure that they get the job done. Unfortunately, that is not something we have always been good at.

As I mentioned, the first nationwide alerting system was created in 1951, but we didn't test the nationwide system until 2011, 60 years later. The results of that test were abysmal, and entire states didn't even receive the test alerts.

Today, we are here to learn about the status and future of public safety and what is being done in the name of saving more American lives. When it comes to public safety, we always must ask ourselves how many lives we are saving, not how many products companies are selling.

And with that, I would like to yield the rest of my time to Ms. Matsui.

Ms. MATSUI. Thank you very much, Ranking Member Pallone, for yielding me time.

Public safety is our first and foremost responsibility to the American public. As technology advances, we should use these innovations to improve emergency communications to our constituents.

I am glad that the subcommittee is focusing on these important issues, but I also believe there are many other pressing issues that deserve our subcommittee's immediate attention. Tomorrow, the

FCC is set to vote to begin the process of rolling back the net neutrality rules, which is a real threat to the free and open internet.

Yesterday, I join my colleagues, Representative Doyle and Eshoo, to ask for a hearing on the proposed Sinclair-Tribune merger, which could have damaging consequences for local newsrooms. It is our responsibility to conduct oversight of these major regulatory decisions and changes in the marketplace. I urge my Republican colleagues to work with us to do so.

And I yield more time here.

Mr. PALLONE. Yes, I will yield the minute that is left to Mr. McNerney.

Mr. MCNERNEY. Thank you.

I also want to express my deep concerns about the FCC/Chairman Pai's proposal to undo the net neutrality rules. Strong net neutrality rules are vital to the more than 31,000 small businesses in my district. Abandoning these rules will make it much harder for a small business owner to get his or her business off the ground and successfully compete in the marketplace.

Additionally, I am concerned about the short public comment periods. It is critical that this period be extended so that all parties, including small businesses, have sufficient time to participate in the process and express their views.

It is my opinion that reducing the net neutrality rules will continue to harm the economy, so we need to make sure that those rules are enforced, that they are in place, and that small businesses have a chance to take an opportunity of the vital internet services that really have created so much economy in our country in the last decade or two.

Thank you. I yield back.

Mrs. BLACKBURN. The gentleman yields back.

This concludes member opening statements. And I will remind everyone that pursuant to the committee rules, all members' opening statements will be made a part of the record.

We want to thank our witnesses for being here today and for submitting your testimony in a timely manner. That allows us to prepare, and we will look forward to hearing from you with your opening statements and then following with our questions.

Our witness panel for today's hearing includes Mr. Sam Matheny, who is the Chief Technology Officer for National Association of Broadcasters; Dr. Farrokh Khatibi, who is the Director of Engineering at Qualcomm Technology; and Mr. Christopher Guttman-McCabe, who is the Chief Executive Officer for CGM Advisors. Chris is testifying on behalf of the Advanced Computer and Communications Company.

We appreciate that you are all here. And we will begin with you, Mr. Matheny, for 5 minutes for your testimony.

STATEMENTS OF SAM MATHENY, CHIEF TECHNOLOGY OFFICER, NATIONAL ASSOCIATION OF BROADCASTERS; FARROKH KHATIBI, PH.D., DIRECTOR OF ENGINEERING, QUALCOMM TECHNOLOGY; AND CHRISTOPHER GUTTMAN-MCCABE, CEO, CGM ADVISORS, LLC, ON BEHALF OF ADVANCED COMPUTER AND COMMUNICATIONS, LLC

STATEMENT OF SAM MATHENY

Mr. MATHENY. Good morning. And thank you, Chairman Blackburn and Ranking Member Doyle, for inviting me here, as well as all of the members of the subcommittee. My name is Sam Matheny, and I am the chief technology officer at the National Association of Broadcasters. I appreciate this opportunity to testify today on the unique and important role that local broadcasters play as first informers during times of emergency and how the innovations of Next Gen TV will enhance that ability.

I bring an on-the-ground perspective to this issue from my nearly 20 years of experience with Capitol Broadcasting Company, parent to WRAL-TV in Raleigh, North Carolina. Like WRAL, all NAB members, the thousands of free local radio and television broadcasters in your hometowns take seriously their role as the most trusted source of news and emergency updates.

Whether it is preparing listeners and viewers for the coming storm, directing them to needed supplies and shelter during the disaster, or helping towns and cities rebuild in the aftermath, local stations are part of the communities they serve. And local radio and TV stations are sometimes the only available communication mediums in an emergency when cell phones and wireless networks fail. In fact, a new poll was released today by Morning Consult reaffirming that broadcasters are the number one medium that the American people turn to in times of emergency by a factor of nearly 4 to 1.

This unique combination of trust and reliability is why, in addition to our ongoing comprehensive news coverage of emergencies, broadcasters form the backbone of the Emergency Alert System, EAS. EAS connects over-the-air broadcast radio, television, and cable systems to communicate critical safety information to the public during sudden, unpredictable, or unforeseen events.

These capabilities can be enhanced by a station's voluntary upgrade to Next Gen TV, which will enable significant lifesaving advances in emergency communications. One need look no further than the recent tragic fire in Gatlinburg, Tennessee, or the destruction caused by Hurricane Sandy to appreciate the vital role of a reliable communications infrastructure in a time of crisis.

I would now like to share some of the capabilities of Next Gen TV through a video demonstration. If we could play the video, please.

So what you are going to see here when the video begins playing is you are watching a basketball game, and an emergency alert, an advanced emergency alert is going to appear. And rather than seeing the normal text that you would see scrolling, what you have here is an ammonia gas leak and a HAZMAT alert. But you also see a menu of items that are available under that alert notice. And so the user has access to a lot more information.

In this case, we are actually presenting a map of the area that is impacted by the ammonia gas leak so you can visually see what is there, as well as a list of the neighborhoods in that community that are impacted.

From that, you can also see that just to the right, a video on-demand file started playing. So instead of the basketball game, you are now watching a piece of content that was downloaded in the background that is specific to the emergency that is taking place where you can get really detailed information.

As we go to shelter-in-place, which is what the recommendation for is in this emergency, you see what it means to shelter-in-place, specific instructions on what you should do in terms of staying inside, in terms of turning off your ventilation systems and protecting yourself.

But if you do feel impacted, you might need first aid, and this is what it tells you what you need to do. In this case, the advice is to seek immediate medical attention, so therefore you also have hospital information as well as wait times. So all of this is being included in this single advanced emergency alert, as well as the additional information you see here on numbers where you can call to get assistance.

Now, had this been an AMBER Alert, you might see the picture of the missing child, you might see a picture of the suspect, or a map of where they were last seen. So there is a great deal of information that can be presented in an advanced emergency alert using Next Gen TV.

The next step in making these improvements a reality is FCC approval of the petition that NAB jointly filed with America's Public Television Stations, the Consumer Technology Association, and the Advanced Warning and Response Network Alliance.

Before I conclude, I want to mention one important item within the oversight jurisdiction of this subcommittee: the recently completed broadcast incentive auction. The FCC has begun the process of relocating or repacking the nearly 1,000 broadcast television stations. Put simply, the \$1.75 billion repack budget and 39-month timeline are likely insufficient for such a massive endeavor, and congressional action is needed.

Thank you again for inviting me here today. I look forward to answering any questions.

[The prepared statement of Mr. Matheny follows:]



**Hearing on
“Future of Emergency Alerting”**

**United States House of Representatives
Committee on Energy and Commerce**

***Subcommittee on Communications and
Technology***

May 17, 2017

**Statement of Sam Matheny
Chief Technology Officer**

National Association of Broadcasters

Good morning, Chairman Blackburn, Ranking Member Doyle and members of the Subcommittee. My name is Sam Matheny and I am the chief technology officer at the National Association of Broadcasters (NAB). Thank you for inviting me to testify on how broadcasters are innovating to better serve our communities with advancements in emergency alerting. All NAB members – the thousands of free, local radio and television broadcasters in your hometowns – take seriously their role as first informers in times of emergency. I will be focusing today on the advanced emergency alerting capabilities enabled by the voluntary upgrade that television broadcasters are planning to make to the Next Generation broadcast television (Next Gen TV) transmission standard, also known as ATSC 3.0. Further, I bring a unique perspective on the indispensable role of broadcasters as first informers given my nearly 20 years of experience at Capitol Broadcasting Company, parent to WRAL-TV, an industry leader with a long history of technological innovation that has saved the lives of viewers in Raleigh, N.C., during times of disaster.

Broadcasters' Unique Role and Experience in Emergency Alerting

As the most trusted source of news and emergency updates, Americans' first choice is to turn to local television and radio stations to get the information they need to keep safe. Local stations are part of the communities they serve, and broadcasters do not hesitate to put themselves in harm's way to bring critical information to their neighbors. Whether it's preparing listeners and viewers for the coming storm, helping them access needed supplies and shelter during the disaster or helping towns and cities rebuild in the aftermath, local broadcasters take seriously their commitment to protecting the public.

Broadcasters invest heavily to ensure they remain on the air in times of disaster. Facilities often have redundant power sources, automatic fail-over processes, generator back up and substantial fuel reserves. Because of the strength of the broadcast infrastructure and the power of the airwaves, local radio and TV stations are often the only available communications medium during disaster situations, even when cell phone and wireless networks can be unreliable. During 2012's Hurricane Sandy, which affected the East Coast from Florida to Maine and ultimately made landfall in New Jersey, broadcasters provided round the clock coverage and were true lifelines to viewers and listeners. Federal Emergency Management Agency officials have noted that in times of emergency there is no more reliable source of information than local broadcasters.

This unique combination of trust and reliability is why, in addition to our on-going, comprehensive news coverage of emergencies, broadcasters form the backbone of the Emergency Alert System (EAS). We have all seen or heard the familiar announcement "The following is a test of the Emergency Alert System. This is only a test." EAS connects over-the-air broadcast radio, television and cable systems, and is used during sudden, unpredictable or unforeseen events. EAS participation is technically voluntary, yet virtually all radio and television stations participate, and do so proudly, even purchasing EAS equipment at their own expense. But the system and the emergency managers that originate messages are not perfect, and below I will detail how Next Gen TV's advanced alerting capabilities could be used in emergencies like the tragic fire in Gatlinburg, Tennessee to better alert those in harm's way and save lives.

The Next Gen TV Standard: A Primer

Next Gen TV has the potential to revolutionize broadcasting by using the world's first Internet Protocol (IP)-based terrestrial television transmission standard, ATSC 3.0. In 2016, NAB, the Consumer Technology Association (CTA), America's Public Television Stations (APTS) and the Advanced Warning and Response Network (AWARN) Alliance petitioned the Federal Communications Commission (FCC), requesting permission for stations and television receiver manufacturers to voluntarily adopt Next Gen TV. We were pleased that the FCC unanimously approved a Notice of Proposed Rulemaking in February and are optimistic that the FCC will authorize the new standard this year.

As broadcasters, we are simply asking to be able to use our spectrum licenses more efficiently and to better serve our viewers. We are not asking for any additional spectrum, government funds or mandates. Unlike other communications providers, broadcasters are the only licensees that must ask the FCC for permission to innovate with regard to our transmission standard. However, by adopting Next Gen TV, broadcasters will have much greater flexibility to innovate going forward.

For viewers, Next Gen TV combines the best of broadcast and broadband. Next Gen TV will provide the capacity necessary for broadcasters to transmit stunning ultra-high definition pictures with brighter and more vibrant colors, together with highly immersive and customizable audio. Next Gen TV also uses familiar web design languages to create interactive experiences for users on the television and in combination with "second-screen" devices such as tablets or cell phones. The result is a higher-quality, interactive viewing experience where the viewer has more control. Next

Gen TV will also provide enhanced opportunities for diverse programming by allowing broadcasters to transmit multiple programming streams, while also creating the potential to allow more robust signals for better in-home and even mobile reception. Most importantly, these same Next Gen TV characteristics and capabilities will enable significant life-saving advances in emergency communications.

Advanced Emergency Alerting

If the FCC approves Next Gen TV, a television broadcaster will be able to simultaneously deliver geo-targeted, rich media alerts to an unlimited number of enabled fixed, mobile and handheld devices across their entire coverage area. For example, rather than simply running an EAS alert or crawl over regularly scheduled broadcast programming for an entire market's viewing audience (and then only reaching those who are watching), a Next Gen TV signal could wake up enabled devices and reach the entire universe of devices within its contour, at the consumer's discretion. Using the rich-media capabilities of Next Gen TV, broadcasters can provide targeted neighborhood-specific alerts that include text, graphics (such as Doppler radar animations or an evacuation route), pictures and even detailed video-on-demand descriptions. The public will have access to all of this life-saving information even if the power goes out or cellular wireless networks fail. Further, compare that to today's 90-character Wireless Emergency Alert (WEA) text message (which often directs users to seek additional information from local media, i.e., broadcasters) and the Next Gen TV capabilities and the public safety benefits are obvious. In addition to simply greater capacity, here are some of the most promising features of Next Gen TV that build on broadcasting's unique trust and resiliency:

- “Wake up” functionality – Next Gen TV enabled receivers can be “woken up” to process alerts even when they are powered off. This feature could be utilized during sudden and unexpected emergencies like tornados or bomb threats.
- Reach – Using the one-to-many architecture of broadcasting, alerts can be sent simultaneously to an unlimited number of enabled devices: both fixed and mobile devices, including automobiles within a broadcaster’s service contour.
- Geo-targeting – Utilizing an enabled device’s location through GPS or otherwise, alerts can be geo-targeted to deliver specific alerts to specific areas, such as storm paths or evacuation routes. This Next Gen TV feature can mitigate the problem of so-called “over-alerting.”
- Personalization – Users will be able to pre-determine the types of alerts or hazard levels that will trigger the display of an alert on their devices, and even potentially select alerts for another geographic area (such as a child’s school).
- Hybrid/ Interactive services – Because Next Gen TV is IP-based and able to connect to communications return paths such as broadband and LTE networks, recipients of alerts can send information back to authorities that originated an alert. For example, a recipient of an AMBER alert regarding a missing child could immediately report seeing the child and the precise location and direction of a suspect vehicle in real time.

The recent and tragic fire in Gatlinburg, Tennessee exposed some of the weaknesses of the legacy Emergency Alert System and opportunities for Next Gen-

enabled advanced alerting to both complement existing systems and mitigate their shortcomings. Last year, on the day before Thanksgiving, Tennessee firefighters began closely monitoring a wildfire in the Smoky Mountains. Three days later, the fire was eight acres in size. As wind and fire conditions began to intensify, emergency managers started to inform the public of the fire two days later, and both the downtown Gatlinburg siren system and door-to-door evacuations began that afternoon. By late that night, 100-mile per hour winds swept and fed the now 17,000-acre fire down the mountain through Gatlinburg, forcing hurried, last-minute evacuations for those that remained in harm's way. However, an 8:30 p.m. evacuation communication from emergency managers using EAS alerts and WEA text messages to warn residents was never issued due to phone, internet and electrical failures. Emergency managers were eventually able to send out messages to evacuate and a request to stay off communication services, but many residents were unable to receive the messages due to either cellular network failure or congestion. Tragically, 14 lives were lost in Gatlinburg that night.

While there are many lessons from Gatlinburg, a more effective and advanced alerting system could have changed the outcome. A Next Gen TV-enabled device that had been turned off for the evening could have been woken up to alert a sleeping owner of the imminent danger. Residents could have received regular alerts, including wind-pattern maps, evacuation routes specific to their location and even video-on-demand with the latest detailed information about the fire. Not only would the content of these alerts be more detailed and interactive than what is available today, but they would travel on the more resilient broadcast architecture and not be subject to cellular wireless

network failure or congestion. This actually has the added benefit of clearing congestion from cellular networks so they can be used for increased communication. As this unfortunate example shows, the public safety benefits of Next Gen TV and advanced emergency alerting can significantly improve the content, pervasiveness, accessibility and reliability of America's emergency alerting systems and hopefully save lives.

Avoiding Unnecessary Delays to Deployment

Before I conclude, I must highlight one issue currently before Congress that could prevent emergency alerts from reaching local broadcast viewers and listeners, while also undermining the deployment of Next Gen TV and the realization of the public safety benefits of advanced emergency alerting. I'm referring to the relocation – or repacking – of nearly 1,000 broadcast television stations in the final and most complicated phase of the broadcast spectrum incentive auction. With the conclusion of the auction, there will be less spectrum allocated for broadcasting and fewer stations. In order to compete and continue to serve our communities, broadcasters will need to innovate and provide the types of compelling services like those enabled by Next Gen TV. NAB asks that policymakers ensure that broadcasters have adequate time and resources to successfully relocate, not only to keep Congress's promise that broadcasters would be held harmless, but also to provide the certainty that an investment in Next Gen TV requires. Broadcasters are willing and ready to make the necessary investments in our infrastructure to provide what we believe will be truly groundbreaking improvements to free, over-the-air television for the benefit of viewers across the country.

Thank you again for inviting me here today. I look forward to answering any questions.

Mrs. BLACKBURN. The gentleman yields back.
 Dr. Khatibi, you are recognized for 5 minutes.

STATEMENT OF FARROKH KHATIBI, PH.D.

Mr. KHATIBI. Chairman Blackburn and Ranking Member Doyle, thank you for affording Qualcomm the opportunity to participate in today's hearing.

Qualcomm is a licensor of highly innovative wireless technology and manufacturer of cutting edge chips of wireless devices.

My name is Farrokh Khatibi, director of engineering at Qualcomm. I have been actively involved in the development of Wireless Emergency Alert, WEA, standards since early 2007.

Recently, I was the co-lead of CSRIC V Working Group 2 on emergency alerting platforms where we completed three reports on WEA security, social media and complementary alerting methods, and wireless emergency alert and geo-targeting.

By the way of background, WEA grew out of the Warning, Alert and Response Network, WARN Act, which became law as Title VI of the SAFE Ports Act in 2006.

Taking advantage of the ubiquity of the mobile platform, Congress put in place a framework for wireless carriers to provide a voluntary public safety alerting system utilizing current wireless network technology. That system allows individuals to receive geo-targeted text-like messages alerting them of imminent threat to safety in their area. The alerts can be originated from local, state, or Federal agencies.

The WEA system represents a successful partnership of public and private entities. Since its launch in 2012, WEA has benefited American wireless subscribers in a number of instances in which WEA has alerted citizens in the path of impending natural disasters, assisted in the rescue of abducted children, and issued shelter-in-place information during public safety incidents.

Currently, there are three types of alerts sent through the system: alerts issued by the President of the United States; alerts involving imminent threat to safety of life issued in two different categories, extreme threats and severe threat; and of course, AMBER Alerts.

With your permission, I would like to highlight two important aspects of WEA. First, emergency alerts are broadcast only to the cell towers in the coverage area that best match the zone of an emergency. All WEA-capable phones that are in that coverage area of the cell site in the zone will receive WEA.

The second important aspect of WEA is that it uses cellular technology and the wireless provider network to broadcast from cell towers to mobile devices in the area. Broadcasting the alert ensures an efficient and timely distribution of the alert compared to sending the alerts point to point, such as SMS.

The wireless industry has worked for years to evolve the service to add new and greater capabilities. For example, after careful coordination with alert originators and our Federal partners, the wireless industry is taking steps to offer capabilities that will include extending the alert message length from 90 to 360 characters for 4G LTE; improving geo-targeting; including embedded references, such as URLs and phone numbers, in WEA messages; add

a new alert category for public safety information messages; add Spanish language alerts; providing state/local alert originators the ability to conduct individual tests of the WEA system in their jurisdiction.

The wireless industry is committed to enhancing WEA. To that end, the industry has taken the lead to study potential future enhancements to WEA, such as enhancement to end-to-end security, event codes, and device-assisted geo-targeting.

Chairman Blackburn and Ranking Member Doyle, thank you again for the opportunity to participate in today's hearing. Qualcomm looks forward to working with the wireless industry, the FCC, the subcommittee, FEMA, and others in the public safety community to ensure that WEA continues to offer a unique and useful way to help protect the American public. Thank you.

[The prepared statement of Mr. Khatibi follows:]

22

Testimony of
Dr. Farrokh Khatibi
Director of Engineering
Qualcomm Technologies, Inc.

on
“Future of Emergency Alerting”

before the
Committee on Energy and Commerce
Subcommittee on Communications and Technology

May 17, 2017

Thank you for affording Qualcomm the opportunity to participate in today's hearing. Qualcomm is a licensor of highly innovative wireless technology and manufacturer of cutting edge chips for wireless devices.

My name is Farrokh Khatibi, Director of Engineering at Qualcomm. I have been actively involved in the development of Wireless Emergency Alert (WEA) Standards since early 2007. Recently, I was the co-lead of Communications Security, Reliability and Interoperability Council (CSRIC) V Working Group 2¹ on Emergency Alerting Platforms where we completed three Reports on:

- WEA Security
- Social Media & Complementary Alerting Methods
- Wireless Emergency Alerts & Geo-Targeting

¹ <https://www.fcc.gov/about-fcc/advisory-committees/communications-security-reliability-and-interoperability>

By way of background, WEA grew out of the Warning, Alert and Response Network (or WARN) Act, which became law as Title VI of the SAFE Ports Act² in October 2006.

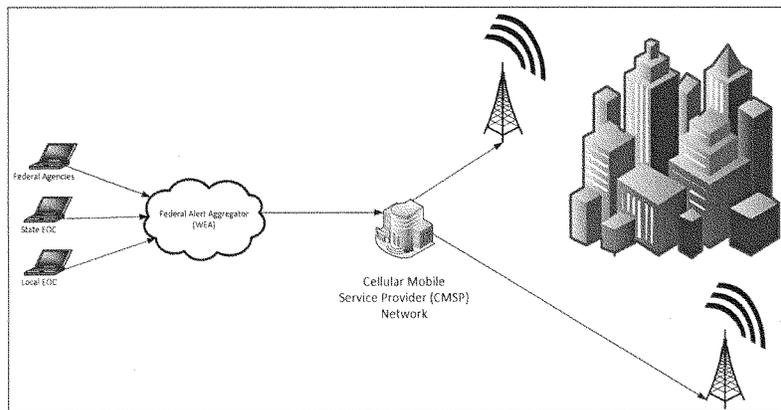
Taking advantage of the ubiquity of the mobile platform, Congress put in place a framework for wireless carriers to provide a voluntary, public safety alerting system utilizing current wireless network technology. That system allows individuals to receive geographically-targeted, text-like messages alerting them of imminent threats to safety in their area. The alerts can be originated from Local, State, or Federal agencies.

The WEA system represents a successful partnership of public and private entities. Since its launch in 2012, WEA has benefited American wireless subscribers in a number of instances, in which WEA has alerted citizens in the path of impending natural disasters, assisted in the rescue of abducted children, and issued shelter-in-place information during public safety incidents.

² P.L. 109-347.

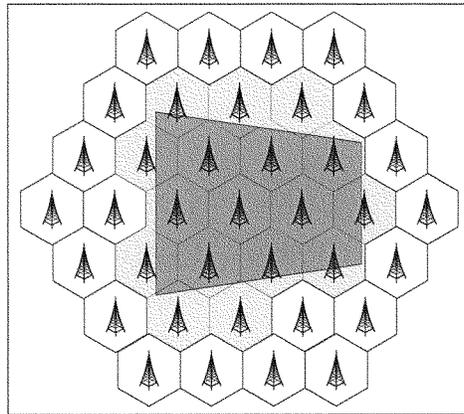
Currently there are three types of alerts sent through this system:

- Alerts issued by the President of the United States;
- Alerts involving imminent threats to safety of life, issued in two different categories: extreme threats and severe threat; and
- AMBER Alerts.



With your permission, I would like to highlight two important aspects of WEA.

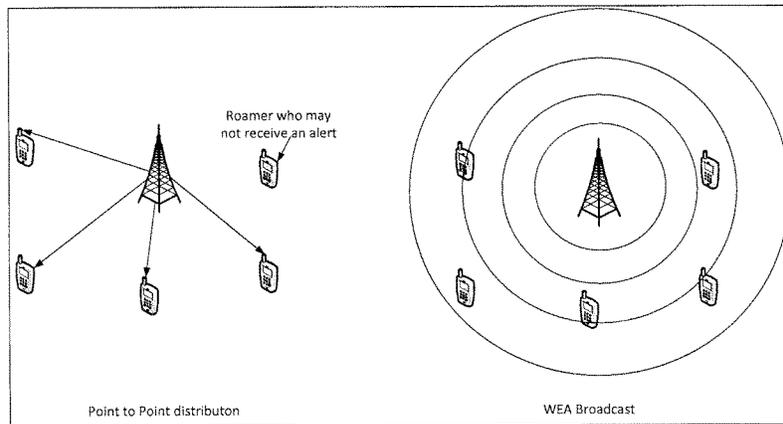
First, emergency alerts are broadcast only to the cell towers in the coverage areas that best match the zone of an emergency. All WEA-capable phones that are in the coverage area of the cell towers in the alert zone will receive WEA.



Orange: geographically-targeted alert area
Yellow: area where the alert is broadcast

This means that if an alert is sent to a zone in New York, all WEA-capable phones in the alert zone can receive it, even if they are roaming or visiting from another state. Individuals do not need to sign up for this service, and Congress provided the ability for users to choose to opt-out of receiving WEA messages for imminent threats and AMBER alerts, but not for Presidential messages.

The second important aspect of WEA is that it uses cellular technology and the wireless provider networks to broadcast from cell towers to mobile devices in the area. Broadcasting the alerts ensures an efficient and timely distribution of the alerts compared to sending the alerts point to point (e.g., SMS).



The wireless industry has worked for years to evolve the service to add new and greater capabilities. For example, after careful coordination with alert originators and our federal partners, the wireless industry is taking steps to offer capabilities that will:

- Extend the alert message length from 90 to 360 characters for 4G LTE;
- Improve Geographical-targeting;
- Include embedded references (URLs and phone numbers) in WEA messages;
- Add a new alert category of Public Safety Information messages;
- Add Spanish language alerts;
- Provide State/Local alert originators the ability to conduct individual tests of the WEA system in their jurisdictions.

The wireless industry is committed to enhancing WEA. To that end, the industry has taken the lead to study potential future enhancements to WEA such as:

- Enhancements to end-to-end security: the wireless industry is vigilant in constantly surveying and addressing security in all of its offerings, and this work follows the recommendations from CSRIC V Report on WEA Security.
- Event codes: in the June 2016 FCC Commission meeting, rules were circulated for adding three new codes for the U.S. Emergency Alert System: Storm Surge Warning (SSW),

Extreme Wind Warning (EWW), and Severe Weather Statement (SVS). While these rules were specifically for Part 11 EAS rules and do not directly apply to Part 10 WEA rules, at the request of the National Weather Service, the wireless industry is working to voluntarily support these new codes on WEA.

- Device-Assisted Geo-targeting: the wireless industry is studying methods for delivering to the mobile device the geographically-targeted alert area defined by the alerting authority, along with the WEA message. A well-managed application on mobile devices may then use this information to determine if it is inside the alert area and act accordingly.

Thank you again for the opportunity to participate in today's hearing. Qualcomm looks forward to working with the wireless industry, the FCC, the Subcommittee, FEMA, and others in the public safety community to ensure that WEA continues to offer a unique and useful way to help protect the American public.

Mrs. BLACKBURN. We thank you.
Mr. Guttman-McCabe, you are recognized for 5 minutes.

STATEMENT OF CHRISTOPHER GUTTMAN-MCCABE

Mr. GUTTMAN-MCCABE. Thank you. And good morning, Chairman Blackburn, Ranking Member Doyle, and members of the subcommittee. It is a privilege and honor to appear before you today to discuss the future of emergency alerts.

During my testimony, I will wear two hats. Most importantly, I will represent AC&C, a small business technology company based in Baton Rouge, founded in 1991, that has developed a transformational software upgrade that I believe will drive the next iteration of wireless emergency alerting.

In addition to representing AC&C, I also appear before you as an early advocate of the wireless emergency alert service. This issue is close to my heart. Today's hearing marks the seventh time that I will appear before Congress to discuss, at least in part, the issue of wireless emergency alerts.

I first tackled this issue working on the WARN Act with Representative Shimkus and his team—thank you, sir—and I was part of the original committee that developed the framework for the WEA service. The emergency alerting platform has evolved in the years since the adoption of the WARN Act. It will evolve further with the recent actions of the FCC and with the industry's commitments in the recent CSRIC V.

Still more will be done after Chairman Pai's leadership when the FCC finalizes its further notice of proposed rulemaking that focuses on the upgrades involving device-assisted geo-targeting. When implemented, that upgrade will dramatically transform the service.

I am not alone in this thinking. Public safety representatives from across the country have identified the need to be able to more accurately geo-target alerts as the single most important upgrade that could happen to the WEA service.

The Big City Emergency Managers organization, which represents the 15 largest cities in the country, said it succinctly: Simply put, device-based geo-targeting provides the lightest lift with the biggest return.

AC&C, the company I represent, has designed and developed a device-based geo-targeting solution entitled PG Alert. It leverages the current cell broadcast technology to push information to the general alert area, and the device takes over using its location awareness to decide who the alert is relevant for and how the alert is displayed on the device. The device can then compare its physical location to the alert area coordinates and play the message only when the person is within the alert area.

For consumers, the upgrade will confirm why the person is receiving the alert by showing the device's position within the alert area on a well-defined map. For public safety alert originators, the most significant benefit will be the ability to contain alert messages to their jurisdiction regardless of size. This will make the system effective for alerts of any size—buildings, streets, college campuses, and more—and will remove the over-alerting problem.

For wireless carriers, AC&C's product is a low-cost software upgrade to WEA that not only will address most of public safety's calls for improvements to the service, but also will enable the industry to take advantage of the cell broadcast technology that exists in their networks.

Additionally, the ability to precisely geo-target alerts will limit the network impact of the WEA service, particularly as carriers begin to include URLs and other embedded information in the WEA message.

We at AC&C are not alone in thinking that this device-enhanced upgrade makes sense. In September, then Commissioner, now Chairman Pai, stated that citizens and public safety officials alike are opting out of the wireless system altogether.

According to Chairman Pai, the city of Seattle says that it doesn't use WEA because of over alerting. The city of Houston says that it has shied away from using WEA because of the high likelihood of over alerting. Harris County, Texas, reports that it chose not to use WEA during four recent disasters solely due to significant concerns over the granularity of alerts.

Chairman Pai said we need to do more than just codify the status quo, and he drove the FCC in the September order to move ahead with a device-based approach to geo-targeting, and in the attached FNPRM to, quote, additional comment on ways we can implement our commitment to device-assisted geo-targeting.

In December, AT&T added support to the idea of device-assisted geo-targeting, suggesting that a managed WEA application on the device could be the solution as it could take the WEA message and then, quote, determine the handset's location using existing capabilities and APIs already available in the mobile device. Once the managed WEA app has identified the handset's location, it can determine whether the handset is in the alert area and display the message. The handset is not in the area, it can ignore the message.

In conclusion, we believe that the future of wireless emergency alerting is in the device, and that future is bright. We understand that the industry is working on a device-enhanced upgrade to the WEA service, and we look forward to continuing to work with the industry and the FCC to integrate the intelligence of the mobile device into the WEA service.

It is our belief that these device-enhanced capabilities will provide significant consumer, public safety, and wireless industry benefits, and help future-proof the WEA service.

I again thank you for the invitation to provide my thoughts on the future of emergency alerts, and I welcome any questions that you might have. Thank you.

[The prepared statement of Mr. Guttman-McCabe follows:]

Testimony of Christopher Guttman-McCabe,
CEO of CGM Advisors, LLC on Behalf of AC&C, LLC

Testimony of

Christopher Guttman-McCabe,
CEO of CGM Advisors, LLC

Testifying on Behalf of
Advanced Computer & Communications, LLC

On the

Future of Emergency Alerting

Before the

House Energy and Commerce Committee,
Subcommittee on Communications and Technology

May 17, 2017

Testimony of Christopher Guttman-McCabe,
CEO of CGM Advisors, LLC on Behalf of AC&C, LLC

Good morning Chairman Blackburn, Ranking Member Doyle, and members of the subcommittee. It is a privilege and honor to appear before your subcommittee to discuss the future of emergency alerts.

During my testimony, I will wear two hats. Most importantly, I will represent Advanced Computers and Communications, LLC. AC&C is a software-as-a-service small business technology company, founded in 1991, that has developed a transformational software product that I believe will drive the next iteration of wireless emergency alerting. AC&C's principal offices are located in Baton Rouge, Louisiana.

In addition to representing AC&C, I also appear before you as an early advocate and long-time supporter of the wireless emergency alert service. This is an issue that is close to my heart. Today's hearing will mark the seventh time that I will appear before Congress to discuss, at least in part, the issue of emergency alerts. I also worked closely with the wireless industry and the FCC during the development of the service, and as part of the original Commercial Service Alert Advisory Committee, comprised of more than 40 individuals representing Tribal, local, State, and Federal government agencies; communications providers; vendors; broadcasters; consumers' groups; and other technical experts. I served on the Advisory Committee on behalf of CTIA.

I first tackled this issue working with Representatives Shimkus and his team, as well as Senators DeMint, Inouye and Stevens, while I was at CTIA. Their hard work and leadership, working with the Public Safety alerting community and the wireless industry, would become the Warning, Alert and Response Network Act, adopted as part of the SAFE Ports Act of 2006. The WARN Act established the framework for what is now known as the Wireless Emergency Alert service. The public-private partnership between government, alert originators and the wireless industry was designed not only to develop and deploy a state-of-the-art wireless alerting capability, but also to ensure that it would be upgraded and improved as technology would allow. Chairman Blackburn, in announcing this hearing, stated that "our communications networks are becoming more advanced and providers are taking advantage of technological innovation and advancements with better targeted, more informative emergency alerts." The Chairman also asked "what improvements have been made and what more can be done to ensure the American public is promptly notified of an emergency situation." I believe those statements can perfectly frame the discussion that we will have today.

The emergency alerting platform has evolved in the years since the adoption of the WARN Act. It will evolve further with the recent actions of the FCC and with the industry's commitment in the recent

Testimony of Christopher Guttman-McCabe,
CEO of CGM Advisors, LLC on Behalf of AC&C, LLC

CSRIC V working group. And still more will be done under Chairman Pai's leadership when the FCC finalizes a Further Notice of Proposed Rulemaking that focuses on additional upgrades to the WEA service, particularly the upgrades involving device-assisted geotargeting.

Currently the WEA service is based on a 90-character message, delivering alerts via a technology called cell broadcast. The alerts fall into one of three categories:

- Alerts issued by the President of the United States;
- AMBER Alerts;
- Alerts involving imminent threats to safety of life, issued in two different categories: extreme threats and severe threats.

The service was successfully launched in 2011. The goal was to get a new alerting capability off the ground, and then upgrade as technology evolved. In a hearing before Congress in October of 2013, I stated that "the wireless industry is committed to working with FEMA and the FCC to ensure that subsequent generations of the system support additional functionality and granularity." I believe that still to be the case. The first round of changes to the system were adopted in September of last year. A key element of those changes was the movement to 360 characters. I believe that the movement to 360 characters will be a catalyst for the improved granularity that I mentioned in 2013, specifically device-enhanced geo-targeting. I believe that upgrade -- the ability to precisely target alerts using a device-enhanced capability -- will future-proof wireless emergency alerting, and set emergency alerting in general on a fantastic course.

I am not alone in this thinking. Public Safety, including representatives from *Harris County, Texas; Houston, Texas; West Feliciana Parish Sheriff's Office; City of Austin HS and EM; Nevada Office of Emergency Management; APCO; NOAA/National Weather Service; Seattle Office of Emergency Management; New York Office of Emergency Management; NY Police/Fire/Mayor's Office; City and County of San Francisco Department of Emergency Management; Office of Emergency Management, Nassau County, NY; Mayor's Office of Public Safety and Homeland Security, City of Los Angeles; Government of the District of Columbia, Homeland Security and Emergency Management Agency; Boulder Regional Emergency Telephone Service Authority; Ventura County Sheriff; EOC, Brevard County, Florida*, and more have identified the need to be able to more accurately geo-target alerts as perhaps the single most important upgrade that could happen to the WEA service.

Testimony of Christopher Guttman-McCabe,
CEO of CGM Advisors, LLC on Behalf of AC&C, LLC

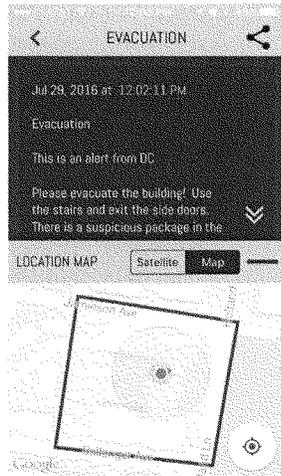
The Big City Emergency Managers organization, representing the Emergency Management Offices of the 15 largest cities in the country, perhaps has said it best. In a letter to the FCC, they said that “the recommendations concerning device assisted geo-targeting in the CSRIC Report entitled *Wireless Emergency Alerts – Recommendations to Improve Geo-Targeting and Offer Many-to-One Capabilities* (Recommendation 3 in particular), are the most important and timely changes to WEA under consideration. Simply put, device based geo-targeting provides the lightest lift with the biggest return.”

AC&C, the company I represent, has designed and developed a software solution (PG Alert) that allows the targeted delivery of emergency alerts, community alerts, and other information. The solution allows alert originators and wireless providers to geo-fence messages to any shape and size. As a device-based upgrade, the PG Alert solution leverages the key components of cell broadcast technology (unlimited communication capacity within the broadcast area, no databases and one way broadcast protecting privacy) to push information into the general alert area and the device’s location awareness to decide who the alert is relevant for and how the alert is displayed on the device. By passing the alert area coordinates to the device along with the message, the device can compare its physical location to the alert area coordinates and play the message only when it is within the alert area. Once the device realizes the message is relevant to its location, it then decides how the person wants the message displayed. Device-based software enhancements are designed to integrate with current technologies being used by Public Safety and the wireless industry.

This device-enhanced upgrade to the WEA service will provide benefits to consumers, alert originators, and wireless carriers. **For consumers**, the device-enhanced upgrade will confirm why the person is receiving the alert by showing the device’s position within the polygon on a well-defined map. In addition, the new upgrades will leverage settings within the device to personalize an emergency alert or community message while still maintaining the user’s privacy since the service is a “receive only” broadcast.

Following is an example of how the device-enhanced WEA message would appear on a mobile device. Note that the blue dot marks the device’s location.

Testimony of Christopher Guttman-McCabe,
CEO of CGM Advisors, LLC on Behalf of AC&C, LLC



For **Public Safety alert originators**, the most significant benefit will be the ability to contain alert messages to their jurisdiction, regardless of size. With the ability to contain the message to their jurisdictional footprint, there will be no need to require authorization from overlapping jurisdictions to send an alert or deliver a community message. This will make the system feasible for jurisdictions of any size (buildings or college campuses), and will provide an “enhanced” alert/notification capability with access to all devices for local communities and Public Safety entities. Additionally, it will allow for much more significant geographic targeting capability, thus reducing the over-alerting problem, and opening the market for community messaging. Finally, increased usage of the service will provide opportunities for Public Safety to “practice” use of the product, increasing proficiency and reducing the need for “drills.”

For **wireless carriers**, AC&C’s product, PG Alert, is a low-cost upgrade to WEA that not only will address most of Public Safety’s calls for upgrading the WEA service, but also will enable the industry to take advantage of the cell broadcast technology that exists in the carriers’ networks. Additionally, the ability to precisely geo-target alerts will limit the network impact of the WEA service, particularly as carriers begin to include URLs and other information in the WEA message.

Testimony of Christopher Guttman-McCabe,
CEO of CGM Advisors, LLC on Behalf of AC&C, LLC

We at AC&C are not alone in thinking that this device-enhanced upgrade makes sense. Then-Commissioner Pai, now Chairman Pai, stated in September in response to the Commission's Report and Order that "after studying the record and speaking with public safety officials, including in New York City, I agreed that we need to do more than just codify the status quo. So, I proposed that we be more forward-leaning, that we commit in this *Order* to moving ahead with a device-based approach to geo-targeting. By enabling devices to screen emergency messages and only allow the relevant ones through, this approach would allow public safety officials to target information to specific geographic areas. And it would advance WEA as a platform by reducing "alert fatigue." I'm happy to report that the *Order* incorporates this approach in addition to adopting other enhancements to our geo-targeting rules. Moreover, the *Further Notice* now seeks additional comment on ways we can implement our commitment to device-assisted geo-targeting."

The FCC's record is clear that this device-assisted upgrade is both transformational and feasible. Numerous companies in the FCC's record last year and this year have stated that integrating the intelligence in the mobile device into the WEA service is possible and would drive significant upgrades to the service. In December, AT&T commented that the precision that Public Safety alert originators are seeking "is not possible using currently deployed cell broadcast infrastructure . . . [and that] if the alert polygon is smaller than a single cell site, it is impossible to transmit the WEA alert and confine it only to those devices within the polygon and no others." The solution that AT&T suggested is incorporating the handset. "The managed WEA App could then take those messages and, if the user has enabled location services, determine the handset's location using existing capabilities and APIs available in the mobile device OS. Once the managed WEA App has identified the handset's location, it can determine whether the handset is in the alert area and display the message; if the handset is not in the area, it can ignore the message. If the location data are not available in the handset, the managed WEA App could default to displaying the message, which it has already received." AT&T also stated that it "is well aware of capabilities in mobile devices and device operating systems, as well as the APIs available to application developers. Such capabilities can be exploited in development of a managed WEA app."

In conclusion, we at AC&C believe that the future of wireless emergency alerting is bright. We understand that the industry is working on a device-enhanced upgrade to the WEA service, and we look forward to continuing to work with the industry and the FCC to integrate our low-cost software-based

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solution that will incorporate the intelligence of the mobile device into the WEA service. It is our belief that these device-enhanced capabilities will provide significant consumer, Public Safety alert originator, and wireless industry benefits.

I thank you again for the invitation to provide my thoughts on the Future of Emergency Alerting, and I welcome any questions that you might have.

Mrs. BLACKBURN. Thank you all for your testimony. And now we are ready for the test portion of this hearing, right? We get to ask the questions and you all get to give us the answers.

Dr. Khatibi, I am coming to you first. Mr. Matheny pointed out the Gatlinburg fires and talked about that as one of his examples of the WEA alerts and some being impeded by network congestion. That is understandable. A catastrophe happens, everybody wants as much information as they can get, people are trying to find family, networks get clogged, and so you have got a strain on the network.

I want you to just discuss this, the situation, the process, and then the upgrades that you see as necessary for continuity and for information flow during those times.

Mr. KHATIBI. Thank you, Chairman Blackburn. So as I mentioned in my testimony, we are working on evolving the WEA technology as it is today, so we are adding more capabilities to it. For example, we are going from 90 to 360 characters, potentially allowing URLs and phone numbers so that people can get more information on it. And so the industry is in a continued mode of evolving the technology to serve public safety.

But in addition to that, I would like to point out that the way I look at public safety is a big puzzle, and we are being part of it. So ATSC 3.0, other services would all complete that picture. So from the perspective of having public safety, I think is all these pieces combined together which form the public safety tools that we need to provide to our customers.

So we are evolving WEA as well as enabling other technologies to it and improve, in addition to what we are doing.

And as I said, for example, addition of 360 characters, the public safety community has come to us and say that is very important to them and that would allow them to provide a lot more information to the public.

Mrs. BLACKBURN. OK.

Mr. KHATIBI. Thank you.

Mrs. BLACKBURN. Thank you.

Mr. Matheny, back in 2011, Gordon Smith told this subcommittee that the NAB—he was speaking on behalf of the NAB—did not seek any sort of mandate for mobile devices to incorporate a DTV. And as the industry transitions to the ATSC 3.0, is it still the case that you prefer market forces as opposed to mandates to look at how we holistically address this? And so go ahead with that.

Mr. MATHENY. Yes, absolutely, Chairman Blackburn, that is the case. We are not looking for a mandate of any sort. We believe that the benefits of Next Gen TV will be attractive enough for themselves, and that is why, if you look at the petition that we filed in concert with CTA and APTS, as well as AWARN Alliance, it is a voluntary move, and so we are not seeking a mandate.

Mrs. BLACKBURN. OK. I want to have each of you answer something. We have talked a lot about the potential in emergency alerting, and what we have not talked about is how to educate consumers. And I want to bring this up because, as we are looking at broadband expansion, one of the things we hear about is adoption

rates and the necessity to educate consumers on the need for these adoption rates.

But as we look at the different abilities and capabilities in the formats for getting the word out in times of tragedy and catastrophe, I think that education for the consumers is going to be an important part of this. So very quickly, since we have only got a half minute left, just go right down the line, what are you all doing to educate people on alert systems and how to use them?

Mr. MATHENY. So I think local broadcasters are part of the communities that they serve, and through our free and local newscasts, we are in constant communication in educating folks about the possibilities.

Mrs. BLACKBURN. OK.

Mr. KHATIBI. That is an excellent question, and we are working very closely with FEMA and DHS to make sure that the consumer understands WEA and understand what to do as a result of that, so that is very important to us. Thank you.

Mrs. BLACKBURN. OK.

Mr. GUTTMAN-MCCABE. And, Chairman, I would agree with both of my colleagues' statements. I would also add that it is very important for us to actually educate public safety alert originators.

What we found on the WEA side is that less than 60 out of tens of thousands of potential alert originators have used the service in the last 7 years. So I think, primarily, we need to do some educating on the public safety side so in instances like Gatlinburg or the Orlando shootings or the floodings in Louisiana, that the local public safety entities actually use the service.

Mrs. BLACKBURN. Did you say 60?

Mr. GUTTMAN-MCCABE. Sixty out of tens of thousands. Perhaps as many as 40,000 entities in the United States could sign up to use WEA and only—actually, I think the number is 52, so I am trying to be conservative and say 60, but I think only 52 have actually ever used it in 6 years.

Mrs. BLACKBURN. If you will, check those numbers and then get that back to us.

Mr. GUTTMAN-MCCABE. Certainly, Chairman.

Mrs. BLACKBURN. My time has concluded.

Mr. Doyle for 5 minutes.

Mr. DOYLE. Thank you, Madam Chair.

Dr. Khatibi and Mr. Guttman-McCabe, in both of your testimonies, you discussed the new advanced wireless alerting features that the FCC voted to allow last year; for instance, longer messages, geo-targeting, public safety alerts, and Spanish language alerts. What is the timeline for these features coming online and how is the rollout going?

Mr. KHATIBI. Ranking Member Mr. Doyle, Congressman Doyle, so we are working very closely with FCC. As a matter of fact, we had a call with FCC just a couple of weeks ago, and we have been scheduling weekly, sometimes twice a week meetings just to make sure they comply with the timeline that FCC had put forth to us.

So we are very motivated, and we are trying to get the standards, which is the document that describe the technology, finished soon, within the next 6 to 9 months. And that has required a lot

of resources, and industry has put a lot of resources because we believe this is very critical.

Mr. DOYLE. Yes, sir.

Mr. GUTTMAN-MCCABE. And Ranking Member, some of it is happening sequentially. So some of the capabilities will be unlocked when the industry goes to 360 characters, and so I think that is sort of the lynchpin for some of the upgrades, not only that were in the order in September, but that are under consideration in the further notice that was released at the same time.

Mr. DOYLE. And tell me, as part of the FCC's further notice on this rulemaking, the Commission considered the addition of multimedia content, true multilingual support, including sign language. What are your thoughts on these proposed next steps?

Mr. KHATIBI. And thank you. I may take that first?

Mr. GUTTMAN-MCCABE. Certainly.

Mr. KHATIBI. I thought you may want me.

So at this point, to support multimedia, we allow enabled URLs, which is basically a pointer to Web site, and that could potentially take you to a place where you can get additional multimedia resources available to you.

And with respect to other languages, we are also working on Spanish language alerts to be available to areas where they have large Spanish language population.

Mr. DOYLE. Thank you.

Mr. GUTTMAN-MCCABE. And Ranking Member, the one thing that I would highlight from the FNPRM and one of the main focuses was on geo-targeting, the ability to target alerts to very precise areas. That, to me, public safety has been relentless in its pursuit of geo-targeting throughout the record, and so that perhaps is the most important in the FNPRM.

Mr. DOYLE. And this is for all the witnesses. One issue I have been very passionate about over the years is working and supporting the autism community. Currently, a number of states support Silver Alerts for the elderly, those with dementia, and autistic individuals. And while these alerts are supported by the Emergency Alert System in several states, they are not supported by wireless alerts.

I just want to ask the panel their thoughts on expanding the alerting system to include these alerts.

I think we are all keenly aware of alerting fatigue, but when you have a friend or a family member or a loved one who is missing and could be a danger to themselves or to others, it seems critical that we use the tools available to us to address this issue. So I am just curious about the panel's thoughts on this issue, Silver Alerts.

Mr. MATHENY. So I can speak to my time at WRAL-TV, and I know that we published a number of Silver Alerts, either through actually publishing via EAS or addressing them in our own air news coverage, and so we think that is part of the service to the community.

Mr. KHATIBI. Thank you. And from the WEA perspective, we would like to consider that as something that we need to work going forward. We haven't done anything on it yet. We just recently added a number of new alerts, but we haven't done the Silver

Alert. But with your permission, we would like to discuss that and see what we can do.

Mr. DOYLE. Great. I would appreciate that.

Mr. GUTTMAN-MCCABE. Certainly. And it was not a type of alert that was established when the committee originally put together the framework for the three types of alerts.

Mr. DOYLE. Mr. Khatibi and Mr. Guttman-McCabe, wireless alerting has operated as an opt-in model for both carriers and consumers. What can you tell us about the effectiveness of this model and how have carriers done in implementing this model and how have consumers reacted? Is there sufficient consumer education for them so that they know this is an option that they can enable? And based on the numbers you were talking about, it doesn't seem like many people are enabling these features. So how do we get more information out?

Mr. GUTTMAN-MCCABE. Certainly, Ranking Member. On the carrier side, it is a voluntary service. I believe strongly in that approach to these types of requirements, strongly enough that I wrote a law review article well after I left law school. Partway through the process, I wanted to shoot myself for having committed to that.

But I believe strongly that you get the best and the brightest in the evolution of the system if you engage in industry, like the wireless industry and others, in a voluntary manner. So the carriers have done their part. They have jumped on board, and it is well disseminated. The carriers have done their part.

On the consumer side, it is not. It is actually the opposite; it is opt out. So the system is designed that you will get the alerts, and you can opt out of two of the three. You cannot opt out of the Presidential alert, but you can opt out of the AMBER Alerts or the imminent threat. Oftentimes, we are quiet about that as an industry, as a society, because we don't want people to actually opt out of the service.

So it is in the phones the ability to opt out. We hope and pray that most people do not, because as much as it may bother you to be awakened at 2:00 in the morning, it is important, if it is an AMBER Alert, to the parents and to society that we find that child. Some people complain, but we hope people don't opt out. The education, I believe, again, needs to be on the public safety side of the equation.

Mr. DOYLE. Thank you so much.

Mrs. BLACKBURN. The gentleman's time is expired.

Chairman Walden for 5 minutes.

Mr. WALDEN. Thank you. Again, thank you all for your testimony and for helping us out in these matters.

Mr. Guttman-McCabe, given the difference in technical platforms, the inclination is discussed alerting in terms of technology silos like EAS or WEA. What are we missing when we approach emergency alerting in this manner?

Mr. GUTTMAN-MCCABE. I think it was either Mr. Matheny or Dr. Khatibi that said it earlier. I think we need a patchwork quilt of approaches, to be quite honest. I think many of us in this room probably have children. I have two teenage daughters. They spend a great deal of time on social media, troubles the heck out of me, but they do.

I think that they will get a fair amount of their information from social media, but I think that there needs to be a primary alerting mechanism like EAS, like WEA. And I don't think we are missing anything at the moment. I do think we need to continue to evolve these services, and that is happening.

Mr. WALDEN. OK. Obviously, you are well informed on all these matters. The FCC has proposed a list of upgrades to WEA, including multimedia alerting and multilingual alerting. Obviously, these sound like good additions, but are there other considerations that we should have that should be included in WEA alerts?

Mr. GUTTMAN-MCCABE. Certainly. And I know the industry is considering it. But currently, the way WEA is structured, is it treats the device, in essence, as a dumb terminal. So if an alert is broadcast using the cell broadcast system, if a device is in the area, place it. It doesn't do anything to it. It doesn't interpret it. It doesn't decide if I should get it or shouldn't get it. It doesn't add any rich content to it. It doesn't push you to a broadband connection. All of that is under consideration.

And I think once we unlock the intelligence in the device, we will get an evolution of this service along the lines that Mr. Matheny is talking about with regard to ATSC 3.0. And so I do think we are going to see an evolution in the next several years as the intelligence in the handset comes in and we are able to take advantage of people's choices on their device, like Spanish as the primary language, like text-to-speech if you have a disability, or larger font, things like that.

Mr. WALDEN. Well, Mr. Matheny, you mention in your testimony the ability of Next Gen TVs to be awakened, woken up, to alert users even when they are powered off. I think the idea of devices in our homes that can be turned on remotely is probably a new one to a lot of consumers. Can you explain further how this functionality works?

Mr. MATHENY. Sure. So thank you, Chairman Walden, for that question. I think that what you can think of is that your television will be turned off and it will actually be in sort of a sleep mode, and at the same time, it can still listen for a discreet, I am going to call it a beacon signal, that will then trigger it to turn on. And that is something that is new to Next Gen TV, and it is something that was very deliberately built in.

And so what we think is that, truly, in a time of disaster emergency, that ability to wake up a device and to provide that, more info, and the types of targeted information that really makes it actionable, is vital and important and will save lives.

Mr. WALDEN. Thinking back to my radio days, we had receivers that had a little device on them, a triggering switch so when they got the multitone actuator, it triggered a relay and turned on the audio. I guess that is all you are talking about here.

Mr. MATHENY. Yes. We are talking about in a very specific situation of activating and turning on the device to present emergency alerts.

Mr. WALDEN. Are TVs able to be turned on for other purposes?
Mr. MATHENY. No.

Mr. WALDEN. OK. We hear these things about cameras on televisions and all that. Can you speak to any of that, since we are on this topic, in general terms?

Mr. MATHENY. All I can speak to really is the capabilities of Next Generation television. The idea of having an internet connected or smart TV with other capabilities, that would fall outside of the realm of Next Gen TV, and those aren't really items that I should speak to here.

Mr. WALDEN. Got it. OK.

I think that is all I have, Madam Chair, so I will turn it back to you.

Mrs. BLACKBURN. The gentleman yields.

All right. Mr. Pallone, you are recognized for 5 minutes.

Mr. PALLONE. Thank you, Madam Chairwoman.

Nearly 5 years ago, Hurricane Sandy ripped through the northeast, devastating so many people across the region. Radio and TV broadcasting played a crucial role in saving lives by letting people know how to stay out of harm's way, and the role of broadcasting can't be overstated. Losing this signal is simply unacceptable.

And that's why I released a discussion draft bill last year called the "Viewer Protection Act," and this bill makes sure everyone can stay connected no matter what. I appreciate that some broadcasters are looking at new ways to deliver their content, but my goal, once again, will be to view this from the eye of a consumer.

So I wanted to ask Mr. Matheny, can you commit that if the FCC adopts this new technology, no viewer in the country, especially the most vulnerable who can't afford a new TV or new equipment, will lose their existing signal?

Mr. MATHENY. Thank you, Ranking Member Pallone. One of the key aspects of the rollout of Next Gen TV is the idea of simulcasting, and so broadcasters will continue to broadcast in the current standard as Next Generation TV also rolls out, and we believe that no one will be disenfranchised.

Mr. PALLONE. All right. And then let me ask. I mentioned earlier, oftentimes the best way to protect people is to make sure that they know how to get out of the way before a disaster strikes. In addition to receiving emergency alerts from broadcasting stations, another powerful way to inform people are through alerts on their cell phones through the wireless emergency alert system.

So I wanted to ask Mr. Khatibi a few questions. I know that you have done a lot of work on the systems that deliver these wireless emergency alerts. How would the proposed new broadcast standard fit into that existing system?

Mr. KHATIBI. Thank you for that question. As we discussed earlier, I think the whole public safety is a patchwork of different elements. So wireless emergency alert is designed to provide the consumer immediate information about the alert that they are receiving, about the incident. Beyond that, if there is a need to get additional information through broadcasting TV and so forth, that can complement WEA.

So from our perspective, wireless emergency alert is the first line of defense where we get the information in a timely fashion, and then additional information, you can get it through the URL provided or through broadcasting.

Mr. PALLONE. Now, will consumers have to buy new TVs or other equipment to receive these new broadcast station alerts?

Mr. KHATIBI. I would defer that to my colleague, Mr. Matheny.

Mr. MATHENY. So to get an advanced emergency alert of the nature that we showed earlier, yes, that would be delivered via the Next Generation system. And so either a new TV set or a new tuner device would be required to receive the advanced alert.

Mr. PALLONE. Now, what new advances are on the horizon for the wireless emergency alert system that will benefit consumers, and will these new features require consumers to buy new phones?

Mr. KHATIBI. So if I may, I will take that one. So as I mentioned, there are a number of activities that we are including, for example, going from 90 to 360 characters, including other languages, such as Spanish, providing additional alert type messages. And a number of those do not require new handsets, but some of them may require handsets as they come into the market. But we are trying to create as many services as possible within the existing handsets that we have. Thank you.

Mr. GUTTMAN-MCCABE. And Ranking Member, if I may, AT&T mentioned in December that there are other capabilities in the device that they believe should and ultimately, I believe, will be connected to WEA that will drive some of the rich content and some of the benefits that Mr. Matheny is talking about that are just software upgrades. So they wouldn't require any additional equipment or change-out in devices.

Mr. PALLONE. All right. Thank you very much.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Lance, you are recognized for 5 minutes.

Mr. LANCE. Thank you, Madam Chair. And good morning to the distinguished panel.

And, Dr. Khatibi, I want you to know I was honored to be at Qualcomm in Somerset County in the district I serve last week, and I understood some of what I was shown, but not everything. It was very advanced, and I must say, your colleagues there are wonderful innovators and great scientists, and you should be very proud, as I am sure your colleagues on the panel are proud of their distinguished employees.

And to you, Dr. Khatibi, following up on Congressman Pallone's questioning, the hurricane in 2012 we call Sandy was devastating to our region of the country, as I am sure everyone in the room knows. Afterward, it became apparent, if it had not been apparent before the natural disaster, that there was great room for improvement.

Do you think things would have been different, given technology advancements and upgrades made by carriers to WEA and to their networks since then? And I would be very interested in your views on this.

Mr. KHATIBI. Thank you for that question. That is actually a very interesting question. You know, for example, let's take a couple of examples, going from 90 to 360 characters. That provides the consumer more information in a timely fashion and potentially having different languages. So, part of our enhancement, part of our evolution is to understand what are the consumer requirements, what are the public safety views on what improvements should be made.

And as we go to 5G, et cetera, we continue to see and understand from our alert originators what are the features that we like to see, and that is part of our path going forward to include all those features.

So for the last few years, we have been very closely working with FEMA and DHS to understand what are the characteristics they would like to see included, and we have been enhancing our system continuously to allow those features to happen.

So the answer to your question is, yes, I believe all this enhancements that we are doing right now will surely, will have benefitted Sandy and other disasters that we have had, and we are hoping that in the path that we have going forward, going to 5G, et cetera, we will continue improving and addressing the needs.

Mr. LANCE. And the sooner we get to 5G the better, I presume.

Mr. KHATIBI. Absolutely, yes. We are putting a lot of resources to make sure that 5G is deployed as soon as possible, and more importantly, that 5G has the capabilities for public safety that we require and we expect.

Mr. LANCE. Thank you very much. And for the panel in general, is there a risk to innovation and to consumers if the FCC forces wireless providers to use a particular targeting technology? And perhaps we will start on this side of the panel.

Mr. GUTMAN-McCABE. Certainly. I am not in favor of them forcing anything.

Mr. LANCE. Nor am I.

Mr. GUTMAN-McCABE. Yes. And I do believe that when you look at capabilities and you identify needs, the FCC's job is to frame those needs, whether it is public safety's needs or consumers' needs, and I think that should be the focus.

Mr. LANCE. Thank you. Others who would like to comment?

Mr. Matheny.

Mr. MATHENY. I would just say that we are not in favor of mandates of that nature, and often, technology outpaces those types of things. And so we would like to be able to use the best available as we continue to innovate broadcasting.

Mr. LANCE. Thank you. I think it is the consensus of this subcommittee, it is certainly my belief that it is difficult for those in public policy to anticipate what is going to happen in technology. And the reason that we are as advanced as we are over the last 20 years is based upon technology that tends to run ahead of statutory law.

Finally, how do we balance the costs and burdens of the new capabilities that you have described the fact that Congress made WEA a voluntary service?

Yes. Yes, sir.

Mr. GUTMAN-McCABE. Sir, I think the word you use, balance, is the correct word. I do, again, believe this should be a voluntary service. And to your point earlier about if the FCC or Congress gets too granular in their requirements, often they miss the mark.

First example was we believe when we set the service that you could overalert and that would be fine, because wireless consumers are mobile. What we missed as an industry was that public safety wouldn't use it if you were overalerting because you would go out-

side of their constituency. So I do think there needs to be a balance.

Mr. LANCE. Thank you. I am over my time by 17 seconds.

I yield back. Thank you, Madam Chair.

Mrs. BLACKBURN. And we will try to make it up.

Mr. McNERNEY, you are recognized for 5 minutes.

Mr. MCNERNEY. I thank the chairwoman.

Mr. Matheny, I am impressed by the advancements of the ATSC 3.0 standards. In fact, the examples that Mr. Gutman-McCabe gave about the geotargeting granularity was very impressive. But I am worried about affordability.

In my district, over 21 percent of the households are living on an annual income of less than \$25,000 a year. These individuals are not likely to be able to afford the new technology that is required, this means they won't have the same access to improved lifesaving information in emergency circumstances.

Mr. Matheny, how can we ensure that adopting the new standard will not further marginalize those who can't afford these services?

Mr. MATHENY. Thank you, Congressman. The key tenet of the transition plan is the idea of a simulcast. And so broadcasters will continue to broadcast in the current generation of standard while also beginning to broadcast in the next generation standard. And so that type of approach will keep everyone able to receive free local broadcasting with the emergency alerts and having access to information.

Mr. MCNERNEY. Well, the new K4 TV, for example, is going to cost a couple thousands dollars, at least initially. I don't see how people can afford that. And it sounds like you are counting on that as part of your system, as a part of the safety system.

Mr. MATHENY. So I think what we are trying to do in our approach is to transition to a new technology that is going to have greater capabilities while also making sure that no one is left behind and everyone has access to our broadcasters.

Mr. MCNERNEY. It is good to know.

Dr. Khartibi, how much do you anticipate the new standard chip will cost to manufacture?

Mr. KHARTIBI. I am sorry, Congressman. I am not a technologist, so I don't have any cost numbers available to me. So I cannot answer that question. I don't have that number.

Mr. MCNERNEY. Well, would you anticipate the device potentially requiring other alterations in these devices and these other components are going to have to be altered as well?

Mr. KHARTIBI. Absolutely. So providing these features of public safety it is part of our schedule of features that is coming up. So our chips are getting more and more sophisticated as we go along.

So adding those new features even all the way to 5G is going to be very small incremental. It is not that you are designing a new chip just for support public safety. We are designing a system, and that system for public safety will make sure that it is part of that evolution.

Mr. MCNERNEY. OK. To change the subject a little bit, Mr. Khartibi.

The emergency alert system has been hacked into in the past, and I understand that the new standard will enable information to be pushed into a much wider range of connected devices. I am concerned that this has the potential for increased cybersecurity risk. Does the new standard address potential cybersecurity concerns?

Mr. KHARTIBI. Very good question, Congressman.

So I was chairing at CSRIC V group on cybersecurity, and as part of that, we identified potential cybersecurity issues. And industry as a whole, we are making sure those cybersecurity issues are addressed. So we are working diligently to ensure that cybersecurity is addressed as we go forward.

Mr. MCNERNEY. Very good.

Mr. Matheny, how are broadcasters planning to educate consumers about the new standard?

Mr. MATHENY. The first step that we need to do is to get FCC approval to use the new standard. And so Chairman Pai has established a target date of the end of the year to actually have that rulemaking out.

We believe that once that is done, stations will begin to go on the air and they will begin to use their airwaves to talk about what they are doing and the benefits of NextGen TV.

Mr. MCNERNEY. It sounds like it is a voluntary program.

Mr. MATHENY. It is a voluntary program, yes.

Mr. MCNERNEY. Well, OK.

Dr. Khartibi, in your written testimony you mentioned that the wireless industry is taking steps to improve geographical targeting. Can you explain how these improvements compare to the geographical targeting of the 3.0 standard?

Mr. KHARTIBI. Actually, it is more on the wireless emergency alert that what we are trying to do is we started as a county level and now we are going to a smaller cell sector level. So we have already improving to a much more granular level at the existing deployment of wireless emergency alert.

Mr. MCNERNEY. It is pretty exciting. I just want to make sure it is affordable for my constituents.

Mr. KHARTIBI. Thank you.

Mr. MCNERNEY. Thank you, I yield back.

Mrs. BLACKBURN. The gentleman yields back.

OK. Now we have got Mr. Long, you are recognized.

Mr. LONG. Thank you, Madam Chairwoman.

On May the 22nd of 2011, it was my oldest daughter's birthday. And we had a birthday party. Next Monday will be another birthday for her on May 22. And at that birthday party, alarms went off in Springfield, Missouri, and there was word that there was a tornado right at the edge of town. And the reason they thought there was a tornado at the edge of town, because there had been one 70 miles away, and we were getting debris from that tornado 70 miles away. In Springfield that hit Joplin, Missouri, on May 22nd of 2011. That was my indoctrination into being a Congressman.

I had been here 5 months at the time and went down there as soon as it was daylight the next day, and stayed on the ground next day, missed a whole week of votes here in Washington. It was the single deadliest tornado in U.S. history since modern record-

keeping began in 1950. Over 160 people lost their lives. If I remember right there were 8,000 homes destroyed, 500 businesses destroyed. And unfortunately, this is not an unheard of story in our part of the country, in tornado ally.

I retweeted a report of a tornado in Oklahoma last night. After event assessments by FEMA determined that improvements were needed to better communicate the risks of impending storms to the public, Mr. Matheny, what kind of increased emergency alerting capabilities could ATSC 3.0 provide if a similar catastrophe, and let's hope it doesn't, strikes such as the Joplin tornado?

Mr. MATHENY. Thank you, Congressman Long. First, if I could, my son shares a birthday with your daughter.

Mr. LONG. Oh, very good.

Mr. MATHENY. And if I reflect back on my childhood, my father was a founding member of the rescue squad in a small town that I grew up in: Zebulon, North Carolina. And I remember vividly the loss of life suffered by a tornado that hit Zebulon when he was in that role.

As it relates to what NextGen alerting can do, it really does come back to the demonstration that we showed earlier, the idea that we can wake up a device that is sleeping. We can provide more information. In the case of a tornado, it might be a map of exactly where the warning is taking place. We can target the alerts, very much like the technology that was being discussed from AC&C.

We can use that same sort of technology so that we are not alerting an entire television market but we are alerting the people that are specifically impacted. And we can deliver them more actionable information that really let's them know what is happening and what they need to do.

And then, finally, we can extend that beyond just the home television set to a variety of different devices from the automobile to computers to tablets, et cetera, anything that might have a NextGen TV tuner in it.

Mr. LONG. OK. Thank you.

And, Dr. Khartibi, what wireless emergency alerts mean for my constituents, and can you discuss what changes have been made to the wireless emergency alerts since then to provide better information to alert recipients?

Mr. KHARTIBI. And thank you, Congressman.

I think the most important thing I want to mention is that this is the most ubiquitous device that we have. We all have a cell phone, at least one, sometimes two. And having the ability to receive imminent threat information on your cell phone is critical to the point that we want to make sure that that information is available to you in a timely fashion and that saves a lot of lives.

But beyond that second part of your question, we are continuing to enhance more characters so that you can have a lot more information. It used to be that we only had 90 characters, now we have 360 characters. We potentially are going to allow URL computers so you can surf, get more information, additional languages, getting a little bit better constraints.

So we are enhancing as we get more demands, we understand the public safety requirements more. To improve the technology to make it more useful for the consumer.

Mr. LONG. All right. Thank you.

And Madam Chair, I yield back.

Mrs. BLACKBURN. The gentleman yields back.

Ms. Eshoo for 5 minutes.

Ms. ESHOO. Thank you, Madam Chairwoman.

First, I just want to make a couple of comments before I get to our witnesses with my questions. And I think that they are both topics that were raised by other members, but I would like to add my voice to it as well.

And that is that for our subcommittee, this is a wonderful hearing in our subcommittee. Certainly, the future of emergency alerting is very important in our country for so many reasons.

But this is the committee that has oversight responsibility of the FCC. The FCC has not been here since last July. That is a long time ago, and there is a lot happening at the FCC.

Tomorrow, they will take up and begin the effort to unravel net neutrality. I believe that this subcommittee, and under your leadership, Madam Chairwoman, that we have a hearing, an oversight hearing, with the FCC.

Both my colleagues, Congresswoman Matsui and our ranking member, Mr. Doyle, and myself have sent a letter to the chairman of the full committee and yourself to request that the subcommittee hold a hearing to examine the proposed acquisition of tribune media by Sinclair broadcasting. This is a \$3.9 billion deal that would create the single largest television broadcast company in the country. And I think that, again, this important subcommittee should be able to review and be able to ask questions.

So I want to underscore the importance of having that hearing as well. So let me get to my questions.

Thank you to the witnesses not only for your testimony but for the work that you have done in this field.

In 2015, hackers were able to successfully disable a French broadcast television station. The new broadcast standard could enable hackers to do much more than simply take a station off the air including giving them a pathway into consumers' homes.

So my question is, how prepared are all of the members of the industry, not just large station groups, to defend against potential cybersecurity threats that the next generation standard may bring?

Mr. MATHENY. Thank you, Congresswoman Eshoo.

Broadcasters take very seriously the cybersecurity issues.

Ms. ESHOO. Well, everyone does. And I have got a minute 50, so I want to get to all three and ask another question. So if you could just be brief. Thank you.

Mr. MATHENY. OK. So we have lots of educational programs that are taking place and operate hardened physical facilities already, and so we take it very seriously and are working hard to ensure that even with the NextGen standard, we maintain top cybersecurity.

Mr. KHARTIBI. I would also agree on wireless emergency that cybersecurity is extremely important, and we have already started activities to ensure that it is a safe and secure process. Thank you.

Mr. GUTMAN-McCABE. I would echo Dr. Khartibi on the wireless side, Congresswoman.

Ms. ESHOO. I have heard some allege that the FCC's net neutrality protections could cause emergency alerts to get stuck behind some other traffic on the internet during an emergency. I would assume that the exception for a specialized service would make sure that that doesn't happen.

So I would like to go to Mr. Gutman-McCabe. Have you ever heard of emergency alerts or any other types of emergency communications being hampered by the net neutrality protections?

Mr. GUTMAN-McCABE. I have not. I mean, I have studied emergency alerts for a long time and net neutrality for a long time, and I haven't actually really focused on the intersection of the two, to be quite honest.

Ms. ESHOO. But you know of none, is what you are saying?

Mr. GUTMAN-McCABE. Correct.

Ms. ESHOO. Broadcasters are going to have the ability to use devices such as GPS information to geotargeting emergency alerts. This raises important privacy questions that are new to the industry.

What other types of information will broadcasters be capable of collecting from consumers, and what safeguards will broadcasters put into place to protect information that is collected by consumers?

Mr. MATHENY. So we believe that the idea of using location can really help with alert fatigue and serves a real value to providing meaningful—

Ms. ESHOO. This is on the privacy side is what I am asking.

Mr. MATHENY. Yes. And so from a privacy perspective, broadcasters would have no greater access to information than they already have through their Web sites or other online offerings. And so there is already well documented security measures in place.

Ms. ESHOO. Thank you.

And I yield back.

Mrs. BLACKBURN. The gentlelady yields back.

Let's see. Mr. Collins, you are recognized for 5 minutes.

Mr. COLLINS. Thank you, Madam Chair.

I want to thank our witnesses. For the last couple of years, pirate radio has been top of mind when it comes to me. And we all know that our former chairman, Mr. Wheeler, showed no inclination whatsoever to deal with the issue.

The good news is Ajit Pai does recognize the impact pirate radio can have. And I think today's radio really highlights a major issue on the emergency alert system and the potential interference. And so I maybe would want some comments from you as we move forward and try to get these pirate radio stations off the air.

But we have certainly had reports. A lot of this is coming out of New York City, that in northern New Jersey, there was trouble with a station on the EIS because of pirate radio interference coming in the New York City area.

And so, the other issue we have noted is that if somebody is listening to pirate radio, they don't broadcast EAS alerts. So somebody in that instance wouldn't get them to begin with. As we move forward, and I know Ajit Pai is going to move forward to try to shut these pirate radios down, kind of new sheriff in town in that regard.

But if you could weigh in. And maybe I will start with Dr. Khartibi on industry's concern with something like pirate radio interfering with public safety in the EIS, EAS alerts.

Mr. KHARTIBI. Thank you, Congressman. I think the important part of wireless emergency alert is that it is a very secure system that is originated from authorities to wireless devices that are functioning on spectrum that are assigned to wireless carriers.

So from that perspective we can decouple somewhat from pirate radio, because all the information is sent through a channel that is licensed by FCC to their carriers.

And the information is coming from an authority that we understand as its originator. So from that perspective, the good news is at that wirelessly, what we are immune from potentially pirate radios. Thank you.

Mr. COLLINS. Now, they are not using license spectrum, they are stealing spectrum.

Mr. KHARTIBI. Yes. But they are operating as a different spectrum than your devices function. Obviously, they can jam and so forth, which they can provide but the spectrum they are using for FM, AM and so forth, they are not the same spectrum we are using for wireless devices.

Mr. COLLINS. Yes.

Mr. Gutman-McCabe, do you have any comments?

Mr. GUTMAN-MCCABE. Congressman, just at the macro level, I think collectively, we as a society have to work to ensure that there is not misinformation when it comes to the delivery of emergency alerts.

I know on the FEMA side they work hard with wireless carriers to confirm that those originating alerts are actually qualified and authorized to do so.

So I think the pirate radio example would fall into a category of potential misinformation alerts and, we have got to be aware and try to reduce or eliminate them.

Mr. COLLINS. Yes.

Mr. Matheny?

Mr. MATHENY. So as we are very concerned about pirate radio, and we think that the examples that you cited are ones that are of vital concern, especially when you consider the daisy chain effect of the EAS system and the idea that a pirate radio station might be operating on a frequency that not only interferes with a station but it could be an originating station that then prevents downstream stations from receiving that alert.

So we absolutely share that concern. I think I would add to that that more and more cell phones have FM chips activated in them. And so the idea that you are able to listen to FM radio on your cell phone and millions upon millions of people are doing that today already, that is it becomes a concern for that type of information getting to cell phones as well.

Mr. COLLINS. Yes. I want to thank all the witnesses.

And I yield back.

Mr. JOHNSON [presiding]. I thank the gentleman for yielding back.

I now yield 5 minutes to our distinguished colleague from California, Mrs. Walters.

Mrs. WALTERS. Thank you, Mr. Chairman.

I would like to thank the subcommittee for holding this hearing and the witnesses for sharing their insights.

Over the years, my district in California has experienced a number of weather-related disasters, including flooding, earthquakes, and wildfires. As recently as last month, an AMBER Alert for a missing 1-year-old girl was issued throughout the region including Orange County. In each instance the distribution and accuracy of emergency alerts are critical to ensuring the safety of all individuals. As technology evolves, so will the way we communicate emergency information.

As a new member of the committee, I look forward to learning more about your issues and how we can work together to build upon the existing emergency alert system.

It is safe to say that Californians are pretty much waiting for the next big earthquake to hit. Particularly in my district, which sits near a major fault line. Schools hold earthquake drills, companies host earthquake safety sessions, and my office has hosted earthquake preparedness seminars for my constituents.

Along those lines, I understand, Dr. Khartibi, that you are doing some work on earthquake detection. Can you tell me a little bit about what you are working on as it relates to the earthquake early warning system?

Mr. KHARTIBI. Thank you, Congresswoman. Thank you for asking that question, because I live in San Diego, and very close to the water, so I want to make sure that we have a system in California to detect and warn people on earthquakes.

So we are working very closely with California OES operation system as well as USGS and earthquake authorities to design a system that we can alert a consumer on earthquake, astronauts detected and we go through a lot of details. There is a way we can detect the earthquake before you can actually get the shaking so we can give advanced warning to the folks who are in the imminent danger to take action before the actual shaking gets to them.

So as I said, this is very near and dear to my heart and we are working very closely, the industry as a whole, to implement a system to detect and alert consumers very similar to real but a lot more efficient and a lot faster on earthquake systems.

Mrs. WALTERS. OK. Thank you.

Mr. Matheny, can you talk a little bit about how NextGen broadcast alerts can provide more information to recipients?

Mr. MATHENY. Yes. Thank you, Congresswoman.

So we think that with the demonstration that we showed earlier and the idea that we can not just present scrolling text or basic information, we are able to really provide actionable information and that could come in the form of maps. It could come in the form of evacuation routes. It could come in the form of video on demand, even.

So if you are talking about a complex issue, the ability to have that video downloaded in the background and to play for the user and combine that with the targeting of information such that if you are in one part of the broadcast area and I am in another, we may get different advice based on our exact situation. So there are a lot of capabilities that NextGen alerting will offer.

And in particular, I put that in the context of, again, being able to wake up a device, so to get someone's attention, whether or not their device is turned on or not.

Mrs. WALTERS. Thank you.

And I yield back the balance of my time.

Mr. JOHNSON. I thank the gentlelady for yielding back.

I now recognize Mr. Costello for 5 minutes.

Mr. COSTELLO. Thank you, Mr. Chairman.

Mr. Matheny, you focus today on the advanced alerting capabilities of NextGen TV broadcast and the standard for it. If I understand correctly, broadcasters have to first ask the FCC for permission to innovate on their standard and achieve any of these benefits. Where is that issue at the FCC, and who else is supporting the Next Generation TV standard?

And then, finally, can you clarify whether broadcasters are asking for any additional spectrum, funds, mandates, or relief from any mandates?

Mr. MATHENY. Thank you, Congressman.

We, along with the Consumer Technology Association, the association for public television stations, as well as the AWARDN alliance filed a petition. There is a notice of proposed rulemaking out now.

Chairman Pai has targeted the end of the year for having rules to enable broadcasters to begin to use the next generation standard. So we are hopeful that that timeline can hold and going into next year we will be able to have stations doing deployment.

As it relates to further asks, our ask is one that is voluntary and does not require any mandates or additional spectrum or new funds. So we are taking a voluntary approach to this and, again, hope that deployment can begin next year.

Mr. COSTELLO. Mr. Khartibi, in your testimony you touched on the recommendations from the CSRIC working group on the WEA security in terms of end-to-end security.

Can you further describe current vulnerabilities and recommendations to mitigate them, the risk of malicious code within the supply chain ancillary questions? What about outside actors originating false WEA alerts or blocking real WEA alerts. And would developing more precise jurisdictional alerts help contain those cybersecurity concerns, or might they, by contrast, make it even a worse situation or accelerate it from spreading to neighboring jurisdictions.

Mr. KHARTIBI. Thank you, Congressman. It is a very good question.

So during the CSRIC V discussion that we had on cybersecurity, we looked at potential security issues end to end, from alert originators all the way to the carriers all the way to the users, and you provided a couple of excellent examples of where security issues could come up.

What we are doing at the industry, we are working very closely with FEMA and DHS to address those security issues and make sure that we have a very secure end-to-end system.

And as you mentioned, one of the points that we are trying to make sure we address is that the alert originators are authorized alert originators. Because we have seen through social media and

so forth, people can take advantage of sending some false alerts to actually cause more damage.

Mr. COSTELLO. Right.

Mr. KHARTIBI. So we are addressing that to make sure that alert originators for real is a secured alert originators.

Mr. COSTELLO. Right, we will have to follow up on that in terms of—I am sorry. Go ahead, please.

Mr. GUTMAN-MCCABE. I was just going to say, Congressman, the latter part of your question involved the geotargeting more granular alerts. And as I said earlier, we are finding that public safety is not using the capability because they can't constrain or confine the alert to their jurisdiction.

Mr. COSTELLO. Right.

Mr. GUTMAN-MCCABE. And we have had many, many cities, and we have had Seattle said they have 18 microclimates, so they can't send alerts, so they don't use it. Harris County, Texas, has said, we haven't used it, because even though we have had five presidential declarations of emergency, because we can't confine it.

So I do think you have to look at that issue with a balance and say the greater the granularity the more likely it actually gets used. That may open the door for some bad actors, but FEMA, I think, has a very robust process for making sure that doesn't occur.

Mr. COSTELLO. Thank you, gentlemen.

Mr. JOHNSON. I thank the gentleman for yielding back.

I am going to yield my time for a few questions.

Dr. Khartibi, one of the things you mentioned in your testimony is enhancing end-to-end security. Could you describe that work and what it is aimed to address?

Mr. KHARTIBI. Yes. Thank you for the question.

So part of the CSRIC V work that we did, we looked at all the end-to-end security, potential security issues that could be introduced. We haven't seen any of those, but we went on and said, OK. What if? And how can we mitigate those security issues?

So we created a report that said, what are the potential issues and how can it be mitigated, and industry now, taking a lead to make sure those security issues would not happen.

So we are doing the best we can. And cybersecurity, you can never be 100 percent, but we are doing all we can to make sure that wireless emergency alert is from a very secured authority and gets to the consumer in a secure way. We have a huge report on that. And, as I said, the industries continue to work on that. Thank you.

Mr. JOHNSON. Thank you. I also notice that in your testimony that the FCC's CSRIC working group did reports on social media and complementary alerting methods. Could you discuss concerns regarding trustworthiness and security with regard to social media as an alerting tool?

Mr. KHARTIBI. Yes. I think you pointed exactly the issue with social media.

So social media can be helpful and at the same time it can be misused. So we had a very interesting discussion during CSRIC V on how potentially even the public safety can take advantage of information that is going on. For example, in the San Bernardino

shooting, there was a lot of information going on on social media that the public safety could use.

At the same time, bad people can take advantage of the social media and spread bad information and cause even more damage. So we need to understand how to help take advantage of social media but not to the point that actually social media is not authority like wireless emergency alert, so that is the balance that we are trying to find.

Mr. JOHNSON. OK, thank you.

Mr. Gutman-McCabe, anything to add to that?

Mr. GUTMAN-McCABE. Yes, Congressman. I heard a great quote with regard to the intersection of social media and emergency alerting, and Dr. Khartibi, I think, really hit at it. But the quote is, "With the use of social media when it comes to emergency situation, there is a potential for viral misinformation." And I think that is a threshold concern that I and others who have worked on this issue have.

Dr. Khartibi, I think, hit on it well, and he said it can provide an additional alternative or an add-on benefit. But the primary has to be, I believe, the EAS system that Mr. Matheny and NAB's members provide as well as the wireless emergency alert that many of us have worked on. I think that has to be the primary, because it is authorized, it is confirmed.

FEMA ensures that the person who originates the alert is actually allowed to—and I think that is a process that ensures that we get correct information, not viral misinformation.

Mr. JOHNSON. Sure.

Mr. Matheny?

Mr. MATHENY. So I would say that trust is the key issue, and that is something that, as the study that was released this morning shows that broadcasters remain the most trusted source for information by a 4X margin. So I think turning to broadcasters to provide that trusted information about what is taking place is key, and broadcasters are providing that not just over the air with the free over-the-air signals but also on numerous platforms including social media.

Mr. JOHNSON. OK. All right. Thank you.

Mr. Khartibi, continuing with you, then, advancements in wireless emergency alerting sound promising, but we have also heard today the limitations of wireless communication, like network congestion in times of emergency.

How is wireless industry working to overcome these limitations?

Mr. KHARTIBI. Thank you, Mr. Chairman.

So what we are doing right now is as we are evolving to 5G, we are trying to find out what other potential issues we can improve the system to make sure that 5G does not inherit all the issues that we had in 4G.

So we are continuously thinking about what are the paths we can get so that wireless emergency alert which can save people and potentially disaster areas. That has no issues with congestion.

Mr. GUTMAN-McCABE. Yes. And I would just add, Congressman, the alert itself goes over a different element of the wireless network, not the same network that you and I would use either for broadband access or for texting or for voice.

It is a cell broadcast, so it is a different component of the network that doesn't have the issues of congestion. Those issues may happen after an event, but not with regard to the WEA service.

Mr. JOHNSON. OK. And I thank you.

My time has expired. I now yield 5 minutes to Mr. Guthrie from Kentucky.

Mr. GUTHRIE. Thank you very much. I appreciate it, Mr. Chairman, for yielding. I appreciate everybody being here.

There was a healthcare subcommittee for the same committee going on, so I have been back and forth. So I think you just started talking about this.

But, Dr. Khartibi, can you walk us through how a WEA alert is broadcast by a service provider?

Mr. KHARTIBI. Yes, I would be happy to do so.

So as my colleague, Mr. Gutman-McCabe mentioned, we have a separate channel that we can broadcast the information. And the best part about it is that when it is broadcast to a particular cell site, all the devices, regardless of where their home location is, would get that.

So, for example, I just arrived from San Diego last night. If there is a chemical spill here, all our devices would get that alert including mine. So there is no subscription needed. It just broadcasts to the specific cell sites that would have that information and all the devices would receive it.

Mr. GUTHRIE. OK. And to Dr. Khartibi again, or Mr. Gutman-McCabe, one of the arguments for ATSC 3.0 is that if the technology incorporated into mobile devices they could be awakened in times of emergency. And I think one earlier might have mentioned this too when I was in earlier, so that alerts can be delivered.

Do you see this as currently feasible, or is there any risk that this capability could drain battery power during a time when a commercial power outage is already compromising strength?

Mr. GUTMAN-McCABE. Congressman, it is certainly something that we talked about when we put the committee together is awakening the device, and I think we called it a zombie device. The reality is the overwhelming majority of Americans for better or for worse don't turn off their devices. And so we did study it at the time, somewhat robustly as we also studied incorporating a broadcast chip and satellite chip and FM chip, and we looked at those different capabilities and settled on the cell broadcast service as the right capability to deliver alerts on the mobile wireless platform.

Mr. GUTHRIE. OK. And my final question for you, again, Mr. Gutman-McCabe, anybody can answer this, is what kind of impact were the advances that you discussed to have on the consumer devices? Do you anticipate it would increase the size or cost of a handset?

Mr. GUTMAN-McCABE. Congressman, no. What we are looking at is simply a software upgrade. AT&T said in December that it could use existing APIs and capabilities in the device. So what we are trying to do is integrate software that would allow the intelligence in the handset to become part of WEA.

And to address, actually, a number of the significant upgrades that Mr. Matheny has discussed, including the ability to geotarget,

including the ability to deliver rich content, including the ability to personalize the alert.

So all of these things are available in—and are part of the capabilities of the device, to be quite honest. Linking that to WEA is what is under consideration at the FM PRM at the FCC, and we think that is the next iteration, the next stage.

Mr. GUTHRIE. OK. Thank you very much. I appreciate your answers, and I yield back the balance of my time.

Mr. JOHNSON. I thank the gentleman for yielding back.

Now yield to Mr. Olson from Texas for 5 minutes.

Mr. OLSON. I thank the chairman.

Welcome to our witnesses. Mr. Gutman-McCabe, you and I are right there. You mentioned Harris County. Harris County is about 20 percent of my district; Texas, 22.

Is on track. It is exploding with growth. We think we will have 1 million people by 2020, that is 250,000 over a normal congressional district. It is the most ethnically diverse district in America. It is very geographically diverse. We have 20-story buildings, suburbs, cotton farms. Our big emergencies are typically weather.

We have a saying in Texas: If you don't like the weather, just wait 15 minutes; it will change. And that change will be a hurricane, a tornado, a drought, a flood, hail, earthquakes.

But our office of emergency management back there have told me and the FCC that geotargeting alerts is the most important thing to the future of wireless emergency alerts since geotargeting can summon a car or order pizza like my son does through my phone or my other phone, and that could arrive at my door.

It seems like my public safety people back home in Harris County should be able to use location capabilities and our devices to target alerts mostly in smaller areas. And since these capabilities are already in most devices like both of these, will that be allowed, will that be in order, will that capability be in order with our wireless communication alert service? What are the challenges going forward? What is going to happen? What are the challenges?

And feel free to talk. It is not just for Mr. Gutman-McCabe.

Mr. GUTMAN-McCABE. So first of all, your Francisco Sanchez is your person that works on this issue in Harris County. And he is fantastic. He has actually worked with Dr. Khartibi on the CSRIC working group, and he is a great public servant.

I have said throughout the hearing, I think getting that ability to geotarget will unleash a world of benefits to this service. And I do believe the capabilities are there, and I do know that Dr. Khartibi and the wireless industry are working on it, the issue is going to be, obviously, timing.

It was a big deal when AT&T stepped out and said these capabilities exist in the device, that they are there, and that the industry can take advantage of those capabilities to manufacture this upgrade and this capability.

Obviously, the issue is going to be when, but I know the industry is working on it.

Mr. OLSON. Dr. Khartibi, you have been drawn in this conversation. You care to add something to it?

Mr. KHARTIBI. First, I would like to also echo the fact that I had the pleasure to work with Mr. Sanchez as part of CSRIC V. We

were the coleads on it, and it was a real pleasure working with him.

And I would like to also—and as Mr. Gutman-McCabe mentioned that industry is working on providing better location services. We went from a county level to cell site level and we have thoughts about, for example, device base on how to potentially improve it even further. So this is definitely industry is taking a lead on it, and we are working very closely with FEMA and DHS to improve that. Thank you.

Mr. OLSON. Thank you. You want anything there, Mr. Matheny, or are you fine?

Mr. MATHENY. No. I would just say that the same benefits of geolocation apply to next generation television, and the idea that we can provide target alerts that would help with alert fatigue but also would provide more actionable information to the affected individuals.

Mr. OLSON. Thank you, gentlemen.

One message from Mr. Sanchez, he wants to remind all of you that the Houston Astros has the best record in pro baseball today. I yield back.

Mr. JOHNSON. I thank the gentleman for yielding back.

Mr. Bilirakis from Florida, recognized now for 5 minutes.

Mr. BILIRAKIS. Thank you, Mr. Chairman. I appreciate it very much.

As a district on the Gulf Coast, a significant portion of my constituents live on or near the water, they live near the water or on the water, and fortunately, they experience major flooding. Currently, evacuation routes are limited to only a few east/west roads and bridges. Unfortunately, about a 40 mile-per-hour wind. The bridges close to the public, which further restricts emergency routes. So it is a big, big problem in our area.

Due to this, I am very interested in the 2016 FCC's examination of new event codes for storm surge warnings and extreme wind warnings.

Dr. Khartibi, what progress has industry made to support these codes?

Mr. KHARTIBI. Thank you, Congressman, for that question.

We have done a lot of progress on that. As a matter of fact, right now, we are almost completing the standard. When I say standards, Mr. Gutman-McCabe work for, we have done prescription so that all manufacturers start implementing it. So we have completed the standards, and that means that now we can make sure that all devices and all handsets would have that capability shortly and the networks as well.

So we are very much on our way to including those event codes in our devices and in our network.

Mr. BILIRAKIS. Thank you very much.

In addition to flooding, just last week my district experienced wildfires. Throughout the ordeal, Pasco County government shared information on social media about road closures, smoke conditions, and also livestreamed a press conference online, our firefighters did an outstanding job as they always do, to put out these fires. So saved many lives. We were so grateful to them.

Again, Dr. Khartibi, could you describe the integration or coordination of wireless emergency alert system messages and the ever-changing information on the ground being shared by the local governments on, again, the online community?

Mr. KHARTIBI. Yes, sir. That is an excellent question.

It is designed so that we can potentially have input from both local, state, and Federal input. And we receive some statistic that there has been 850 alert originators so far and over 30,000 alerts sent. So we allow, definitely, local authorities definitely have access to provide timely information to consumers in scenarios we described.

Mr. BILIRAKIS. OK.

One last question. Due to my area's limited evacuation routes, and we are working on fixing that, but I am intrigued by the development of more accurate geotargeting of emergency areas. By mitigating alert spillover outside the target zone, we can prevent unnecessary road congestion. So the question is for Mr. Gutman-McCabe.

You discussed the ability to geofence any shaped emergency zone and better target populations. Is it feasible in the near future to send two separate messages to two distinct groups within a specific tower coverage area? Again, how granular can we go?

Mr. GUTMAN-McCABE. Certainly, Congressman.

So the answer is yes, it will be, this ability to geotarget and get more granular is put into the device. Think of it as two people on the same street can order Uber and get two different Ubers to the same area, or I can order an Uber in my house and walk across the street and order a second one and get both of them. It is the only limitation is the ability of the device to identify its location, and the devices are getting more and more accurate.

So the public safety, and the FCC is proceeding, has identified exactly that type of scenario that you have just highlighted, which is we want the west side of this street to move west, and we want the east side of this street to move east, and that is the way we avoid congestion.

And so evacuation routes or, you know, splitting an order, shelter in place to this block, evacuate, you know, to the next block. And you can imagine that type of situation applying itself in all sorts of emergency scenarios; shootings, things like that.

That horrific shooting in Orlando is a perfect example. Public safety would like to target an alert right to that specific nightclub and say to that nightclub, you know, there is a shooter in the building. We are coming in, you know, duck. And then outside that building, it would be, do not go near the building. And so in that situation, you would have a donut hole in a donut sort of message. That capability is on the horizon.

I know the industry is working on it, and we believe, but more importantly, public safety believes it will be informational.

Mr. BILIRAKIS. Very good. Exciting stuff. Thank you.

I yield back, Mr. Chairman.

Mr. JOHNSON. Thank you. The time has expired. And now seeing there are no further members wishing to ask questions for the panel, I thank all of our witnesses for being here today.

Pursuant to committee rules, I remind members that they have 10 business days to submit additional questions for the record. And I ask that witnesses submit their responses within 10 business days upon receipt of these questions.

Seeing no further business before the subcommittee today, without objection, the subcommittee is adjourned.

[Whereupon, at 11:51 a.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]



Matthew M. Polka, President and CEO
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May 15, 2017

The Hon. Marsha Blackburn
 Chairman
 Communications and Technology
 Subcommittee
 Committee on Energy and Commerce
 UNITED STATES HOUSE OF REPRESENTATIVES
 Washington, D.C. 20515

The Hon. Michael Doyle
 Ranking Member
 Communications and Technology
 Subcommittee
 Committee on Energy and Commerce
 UNITED STATES HOUSE OF REPRESENTATIVES
 Washington, D.C. 20515

Re: Future of Emergency Alerting Hearing

Dear Chairman Blackburn and Ranking Member Doyle:

I write on behalf of the American Cable Association regarding your upcoming hearing on the future of emergency alerting. I expect that the subcommittee will hear about the proposed new broadcast standard, ATSC 3.0, and the potential advances in emergency alerting made possible by it. If broadcasters deploy such advances, viewers could benefit.¹ At the same time, you should be aware that the proposed transition to the new broadcast standard may well *harm* emergency alerting, and you should also know about several reasonable steps the FCC could take to mitigate this potential harm.

ACA represents more than 750 of America's small- and medium-sized cable operators. Some of our members bring competition to large providers in urban markets, but most provide connectivity to some of America's smallest towns and in some of its most rural locations. Although we do not oppose the ATSC 3.0 transition, we do have a variety of concerns about the migration from the existing standard (ATSC 1.0) to the new ATSC 3.0 standard. We have described these concerns in comments to the FCC.² As described below, some of our concerns have implications for emergency alerts.

¹ Broadcasters have not committed to improving emergency alerts when they deploy ATSC 3.0, and the proposal before the FCC would not require them to do so. Such improvements, moreover, may be years away and require consumers to purchase compatible equipment.

² See Comments of the American Cable Association, GN Docket No. 16-142 at ii (filed May 9, 2017) ("ACA Comments"), <https://ecfsapi.fcc.gov/file/105090816706517/ACA%20Comments%2C%20GN%20Docket%20No.%2016-142%2C%205-9%20FINAL.pdf>; Comments of the American Television Alliance, GN Docket No. 16-142 at ii (filed May 9, 2017).

Connecting Hometown America

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May 15, 2017
Page 2 of 4

Many of our concerns stem from the fact that, even though ATSC 1.0 and ATSC 3.0 are both “digital” signals, ATSC 3.0 is not “backward compatible” with ATSC 1.0. This means that, in order to receive ATSC 3.0 signals, consumers will need new televisions or new converter boxes—or subscribe to a cable operator that could “downconvert” the new signals into the existing format.³

This lack of compatibility raises real concerns for emergency alerts. If a station were to replace ATSC 1.0 transmissions with ATSC 3.0 transmissions tomorrow, everybody without ATSC 3.0-compatible equipment would lose service altogether. Those few viewers with such new equipment might get better emergency alerts (if the station chose to make such improvements). The rest would get no alerts from the station at all.

Broadcasters sought to address the backward-compatibility problem by proposing a “simulcast” requirement.⁴ Under this proposal, every station that wanted to transmit in ATSC 3.0 would have to find another “host” station on which to simulcast ATSC 1.0 signals in the same local market. In this way, viewers without the latest equipment would not be “disenfranchised.”⁵ Yet this proposal will not mitigate the threat to emergency alerts because:

- (1.) *Some broadcasters have abandoned support for their proposed simulcast requirement.* Last week, parties submitted their initial comments on the proposed ATSC 3.0 transition to the FCC. Some broadcasters now argue that the FCC should *not* require simulcasting—even though the proposal was broadcasters’ idea in the first place.⁶ Broadcasters now argue that the decision whether to simulcast

<https://ecfsapi.fcc.gov/file/10509290260067/ATVA%20Comments%2C%20GN%20Docket%20No.%2016-142%2C%205-9%20FINAL.pdf>

³ Downconversion is a technical process that remains under discussion in an ATSC subcommittee and is far from being a settled matter.

⁴ See Joint Petition for Rulemaking of America’s Public Television Stations, the AWARN Alliance, the Consumer Technology Association, and the National Association of Broadcasters, GN Docket No. 16-142 at 17-18 (filed Apr. 13, 2016), <https://ecfsapi.fcc.gov/file/60001701021.pdf> (“The core of the voluntary, market-driven implementation of ATSC 3.0 will be local simulcasting. Under this plan, each television broadcaster choosing to implement Next Generation TV will arrange to continue to broadcast in the current DTV standard so that viewers will not be disenfranchised Local simulcasting will permit uninterrupted service to continue as the American public embraces Next Generation TV reception equipment, and will permit this innovative new standard to be implemented without necessitating new simulcast channels from the Commission.”).

⁵ *Id.*

⁶ See, e.g., Comments of ONE Media, LLC, GN Docket No. 16-142 at ii (filed May 9, 2017), <https://ecfsapi.fcc.gov/file/105091399707695/One%20Media%20Comments%2016-142.pdf> (“But the Commission should and must recognize that simulcasting will not always be practical or even possible. Stations that wish to upgrade to Next Gen TV but which cannot provide an ATSC 1.0 simulcast in spite of reasonable efforts to do so should nonetheless be permitted to upgrade their service.”); Comments of TEGNA, GN Docket No. 16-142 at ii <https://ecfsapi.fcc.gov/file/105091859505983/TEGNA%20Comments%20-->

May 15, 2017
Page 3 of 4

should be left to individual stations based on marketplace considerations. This is unacceptable. Of course, the idea that the marketplace alone would have created the emergency alert system we have today is questionable at best. And a station might have many reasons to conclude that *not* simulcasting serves its economic interests—even if that means delivering signals (and emergency alerts) in a format that many televisions cannot receive. From our perspective, a simulcasting requirement represents the bare minimum required to protect viewers from loss of service, including emergency alerts.

- (2.) *Simulcasts would not reach all viewers.* Even if the broadcasters reaffirm their initial commitment to simulcasting, the simulcasting requirement as initially proposed would not sufficiently protect viewers. The proposal would allow stations with large coverage areas to simulcast ATSC 1.0 signals from “hosts” with different or smaller coverage areas. ATSC 1.0 simulcasts from “host” facilities, almost by definition would not reach some over-the-air viewers. Just as viewers would lose emergency alerts if broadcasters refused to simulcast, they would also lose emergency alerts if simulcast signals did not reach them. Although we have proposed safeguards at the FCC to prevent these outcomes,⁷ broadcasters appear likely to object to our suggestions. At this point in the debate, it is too early to tell whether the FCC will adopt our recommendations.

* * *

[%20Next%20Generation%20TV.pdf](#) (filed May 9, 2017) (“TEGNA stresses that [a simulcast] requirement is not only unnecessary but the wrong course of action. As we have stated, broadcasters are strongly motivated to ensure the continuity of viewer access. . . . [I]mposing a one-size-fits-all mandate on all transitioning stations across the country will undermine the benefits of the flexible, market-based approach the Commission should take in implementing other aspects of the transition. . . . The Commission need not substitute its own judgment for that of local stations that know their communities best. If the Commission adopts the proposed simulcast mandate, it would unnecessarily constrain the ability of stations to best serve local community needs and respond to their markets.”).

⁷ These safeguards include: (1) encouraging broadcasters to offer ATSC 1.0 simulcasts from existing facilities (which would eliminate coverage problems); (2) limiting coverage loss for stations simulcasting from other facilities; and (3) requiring stations simulcasting from other facilities to reach the headends of all cable operators relying on off-air delivery today. See ACA Comments at 7-10.

May 15, 2017
Page 4 of 4

Again, we think the transition to ATSC 3.0 *could* allow broadcasters to improve emergency alerts substantially, just as it could improve many other aspects of broadcast service. The subcommittee should take the time to consider the ways in which the proposal as now formulated could disrupt emergency alerts. We hope to work with the subcommittee and the FCC to find ways to prevent such an outcome.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew M. Polka", with a long horizontal flourish extending to the right.

Matthew M. Polka
President and CEO

cc: Subcommittee Members