Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Reliability and Continuity of Communications	)	PS Docket No. 11-60
Networks, Including Broadband Technologies	)	
	)	
Effects on Broadband Communications Networks	)	PS Docket No. 10-92
of Damage or Failure of Network Equipment or	)	
Severe Overload	)	
	)	
Independent Panel Reviewing the Impact of	)	EB Docket No. 06-119
Hurricane Katrina on Communications Networks	)	

COMMENTS OF THE
NATIONAL ASSOCIATION OF BROADCASTERS

I.   Introduction and Summary

The National Association of Broadcasters (NAB)[1] submits these comments to aid

the Commission's examination of the reliability of communications networks during

emergencies.[2] As an essential part of our nation's communications infrastructure,

television and radio broadcasters appreciate this opportunity to identify ways in which

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[1] NAB is a nonprofit trade association that advocates on behalf of local radio and television stations and also broadcast networks before Congress, the Federal Communications Commission and other federal agencies, and the courts.

[2] See *Reliability and Continuity of Communications Networks, Including Broadband Technologies; Effects on Broadband Communications Networks of Damage or Failure of Network Equipment or Severe Overload; Independent Panel Reviewing Impact of Hurricane Katrina on Communications Networks*, Notice of Inquiry in PS Docket Nos. 11-60 and 10-92, EB Docket No. 06-119 (Released April 7, 2011)("*Notice*" or *"NOI"*).

the Commission can ensure – and even expand – the availability of broadcasters' timely and extensive emergency information in times of need.

Our nation's radio and television broadcasters provide a powerful combination of ubiquitous availability and journalistic enterprise that has served local communities as the primary information source during emergencies and disasters for nearly 100 years. Despite great advances in communications during that time – from cable and satellite technology to the rise of the Internet – local radio and television stations are, and will continue to be for the foreseeable future, irreplaceable as a means to inform the public. This role was clearly evident during the tornados that devastated cities and towns in the Midwest and South this past spring. There is little doubt that but for the alerting capabilities of radio and television broadcasters in the moments leading up to those disasters, many more lives would have been lost.

Broadcasters' unique role as "first informers" is based, in large part, on the design of the broadcast model. The "one-to-many" broadcast architecture, providing powerful signals that blanket communities, is the most robust model for delivery of information and programming that many want to access at the same time. No other model works as well. This is especially true during emergencies. Whereas wireline and wireless networks can be quickly overwhelmed by a surge in traffic, broadcast networks are infinitely scalable to additional users. In the critical moments before a disaster strikes, this reliability could be the difference between life and death. And, after major disasters, broadcast signals can be the only connection between citizens in need and the outside world.

The Commission should ensure broadcasters' alerting capability and emergency services are maintained and, additionally, should take steps that would guarantee such alerts and information reach as many people as possible in their homes and on the go. For example, the Commission must consider the impact of possible spectrum reallocations on the deployment of mobile DTV, a service which could be used to instantly reach millions of consumers wherever they might be. The Commission should also actively promote the inclusion of broadcast chips in mobile devices.

Broadcasters support efforts by the Commission to enhance the reliability of communications networks in times of emergency. We believe that those efforts must include a focus on the ability of the broadcast system to inform citizens, especially when all other communications systems fail.

II. Radio and Television Broadcasters' Role as "First Informers" Ensures Timely and Continuous Information during Emergencies and Disasters

Broadcasters have earned recognition for their service during emergencies and disasters by providing the public with effective warnings, and reporting critical information as events unfold. As noted in the FCC's recent *Future of Media* Report, "during emergencies, the local TV station is often considered to be as vital a part of the local community as the police and fire departments."[3] Broadcasters take their role as "first informers" very seriously. In the last few years, local stations' commitment to emergency services has proven itself time and again as communities across the country have been struck by disaster.

Here are some examples:

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[3] Steven Waldman, *The Information Needs of Communities: The Changing Media Landscape in a Broadband Age,* at 79 (June 2011) ("The Future of Media Report").

- Prior to tornados striking Joplin, Missouri in May, radio station KZRG began wall-to-wall coverage to alert residents about the storm an hour and a half before the twister touched down.[4] When Internet and mobile connections were unreliable following the tornado, Zimmer Radio, owner of KZRG, broadcast a single feed of continuous disaster coverage on six radio stations. *Id.* Crews drove to the station immediately after the tornado in order to provide information on medical help, the missing, and where residents could buy gas and groceries. *Id.*

- A survey conducted of Alabama residents impacted by the tornados that struck in late April 2011 reported that 71% of adults received early warning of the tornados by watching television.[5] An additional 10% of those surveyed learned of the tornados via radio. A mere 6% of respondents learned of the tornados through Internet, smartphones, or Twitter/Facebook. *Id.*

- When Nashville, Tennessee suffered major floods in spring 2010, local radio station WKRN-TV stayed on-air for 16-hour stretches.[6] The station aired practical information, informing residents where to find water and shelter. *Id.* WKRN also streamed its broadcast on the station website, and solicited and aired information from users via email, Twitter and by phone.[7]

Despite the growth of wireless services, including broadband, broadcasting continues to be relied upon throughout the world as the principle means of communicating with the public before and after disasters. One example from Japan following the devastating earthquake and tsunami in March shows the impact of mobile broadcasting as an alerting mechanism. More than 75 percent of mobile phones in Japan include a mobile DTV chip and the service is actively used by more than 40

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[4] Moni Basu, "Radio Stations Chug Along 24/7 in Tornado-devastated Joplin" May 24, 2011, CNN, available at http://articles.cnn.com/2011-05-24/us/missouri.tornado.radio_1_radio-stations-killer-tornado-deadly-tornado?_s=PM:US

[5] Alabama Tornado Survey, Billy McDowell, VP of Media Research RAYCOM Media, May 2011.

[6] *Future of Media Report* at 80.

[7] *Id.*

percent of the population.[8] In the moments after the earthquake hit Japan, television

stations began broadcasting tsunami warnings. Individuals without access to a

television, or who lost power, were able to watch these warnings and other information

about the unfolding events via their mobile phones.[9] As one resident noted: "It's very

convenient being able to watch live TV when the phones are down. Otherwise, we'd

have no idea what is going on." *Id.*

Local broadcasters can also bring another dimension to alerting the public – their

newsrooms. Unlike wireless carriers, local broadcasters both create and distribute

content. Television and radio stations, located in their viewing and listening areas, are

uniquely positioned to provide up-to-the-minute information on emergencies and

disasters. Many local television stations employ highly sophisticated weather tracking

systems that can provide detailed information on severe weather, including tornados.[10]

Thus, while broadcasters encourage the Commission's efforts to launch a cell-based

warning system, we urge the Commission to recognize that such a system is a

complement, not a substitute for the information and services provided by broadcasters.

No text-based technology with limited space for information or data can replace the

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[8] *See* Heather Fleming Phillips, "Free is the Key To Mobile DTV Success," TVNewsCheck (March 9, 2011), available at http://www.tvnewscheck.com/article/2011/03/09/49663/free-is-the-key-to-mobile-dtv-success.

[9] WALL STREET JOURNAL *Live Blog: Japan Earthquake,* March 11, 2011 3:06 AM JST http://blogs.wsj.com/japanrealtime/2011/03/11/live-blog-japan-earthquake/tab/liveblog/.

[10] Broadcasters' investments in emergency journalism are significant. *See The Economic Realities of Local Television News – 2010*, attached to NAB Comments in GN Docket No. 10-25 (filed May 7, 2010)(reporting that a single season's hurricane coverage cost one station $160,000 *before* accounting for lost advertising revenue, and that another station lost 50 percent of its revenue for an entire month following the September 11 attacks because intensive news programming preempted so much regular programming).

extensive and detailed information offered by broadcasters, as well as the reassuring

impact of a human voice in emergency situations.

III.   The "One-to-Many" Broadcast Architecture Is More Robust Than the "One-to-One" Broadband Architecture for Delivery of Critical Information During Emergencies

Because of the differences in their network architecture, even with additional

reliability enhancements, wireless networks are simply not as durable as broadcasting

during emergencies. The architecture of cellular network technology – a one-to-one,

node-based structure – is ideally suited for interactive communications, but lacks

robustness under heavy usage, which typically occurs in emergency situations.

Broadcasting's one-to-many architecture, in contrast, cannot be overwhelmed by

increased usage.

When Hurricane Katrina made landfall on August 29, 2005, cellular infrastructure

in New Orleans was devastated.[11] The few cellular towers that survived were

overloaded by residents attempting to make phone calls.[12] When phone networks failed

and residents of New Orleans were cut off from the rest of the world, they "huddled

around battery-operated devices, seeking comfort and news from the on-air voices."[13]

During the crisis that followed in the aftermath of Hurricane Katrina, several radio

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[11]   Marguerite Reardon, *Why Cell Phone Networks are a Weak Link in a Crisis*, CNET NEWS, Aug. 2, 2007. Available at http://news.cnet.com/8301-10784_3-9754096-7.html.

[12]   Tom Conlon, *Bridge Collapse: Why Did Cell Phones Fail?*, SWITCHED, Aug. 3, 2007. Available at http://www.switched.com/2007/08/03/bridge-collapse-why-did-cell-phones-fail/?feeddeeplinkNum=0.

[13]   *Good Morning, New Orleans*, NEWSWEEK, Sept. 21, 2005, at 14.

stations were able to continue broadcasting.[14] While New Orleans was flooded and

residents had no source of information or connection to the outside world, fifteen radio

broadcasters banded together and began transmitting news and information 24 hours a

day from a station in Baton Rouge.[15]

Similarly, in the hours and days following the recent devastating tornado in

Joplin, Missouri, "[t]elephone lines were down" and "[c]ell phones didn't work."[16] In sharp

contrast, local radio stations were able to continue broadcasting without interruption. *Id.*

Several radio stations began broadcasting emergency information 24 hours a day while

simultaneously allowing residents to send out personal messages in search of loved

ones. *Id.*

The point-to-point architecture of wireless broadband networks essentially means

that each user has his or her own path in the cellular network. This type of design allows

two people standing next to each other using the same type of device and operating on

the same wireless network to access totally different types of information. The first

person can be watching a video and the second person can be looking up directions to

the closest Chinese restaurant. But, if those two people and hundreds or thousands of

other people near them are trying to access the same information at the same time –

like they may well during an emergency – the wireless network will quickly be

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[14] Reginals F. Moody, *Radio's Role During Hurricane Katrina: A Case Study of WWL Radio and the United Radio Broadcasters of New Orleans*, JOURNAL OF RADIO & AUDIO MEDIA, 16 (2), p. 160-180, at 164 (2009).

[15] *Id.* at 165.

[16] Jay Scherder, *Radio Station Connects Joplin Tornado Victims After Other Communications Were Cut Off*, KY3 NEWS, May 25, 2011. Available at http://www.ky3.com/news/ky3-radio-station-connects-joplin-tornado-victims-after-other-communications-were-cut-off-20110525,0,7257538.story.

overwhelmed. And, no amount of additional spectrum or other redundancy can overcome this issue.

Mobile device connections begin with a link between a user's mobile device and a base station (often a cell tower).[17] These base stations cover a certain geographic area and receive all data transmitted from mobile phones within that geographic area. The base station then transmits the data (in the wireless broadband context, this data is often a small packet requesting data be sent to the mobile phone) to a mobile switching center. The mobile switching center connects the data to a transmission network where the data is sent to its final destination. *Id.* The data requested by the user is then sent through the same transmission network and back through the mobile switching center. From there, the data is sent to a base station that transmits the data to the individual's mobile phone. *Id.*

With this unicast design, a base station needs to send data to every mobile phone individually, even if those phones are accessing the same data (as they would during an emergency). This creates a serious risk of overloading the cell network when too many people attempt to access the network at the same time.[18]

In contrast, television and radio broadcasting creates one or just a few data streams and transmits that data over a specific geographic area using a high-powered transmitter. This data can be received by anyone who has a receiver located within the

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[17] D. Tipper, S. Ramaswamy, T. Dahlberg, *PCS Network Survivability*, *Proceedings of the IEEE Wireless Communications and Networking Conference 1999,* New Orleans, LA, Sept., 1999.

[18] *See* Tom Wolzien, "Homeland Security Depends on Broadcast," *TVNewsCheck* (April 4, 2010)(observing that "broadband circuits – wired or mobile – can clog up and the information-carrying data can't pass" when "many people need something at the same time").

transmission range of that broadcaster. Since there is no uplink or return path in the broadcasting model, no stress is put on broadcasting network. Therefore, a broadcaster's data stream will continue, uninterrupted, regardless of how many individuals decide to view or listen to the broadcast. Because of this ability to blanket "an unlimited number of users with the same information" simultaneously, without delays or "clogs," it has even been observed that "homeland security depends on broadcast." *Id.*

We note that, theoretically, a cellular network provider could build a system capable of handling the increased cellular and broadband traffic that accompanies emergency situations. Building thousands of extra base stations, mobile switching centers and other excessive redundancies could be sufficient to handle extreme spikes in data requests. However, it is simply not realistic, as a financial or practical matter.[19] According to Heidi Flato, a spokesperson for Verizon Wireless in Northern California, it is not practical to build a cellular network for emergency situations.[20] "To build for that sort of need, for that sort of circumstance, it's like building a second [San Francisco] Bay Bridge just in case the first one falls down," she said. *Id.* Consequently, wireless services, including broadband, will likely remain a supplement to, and not a replacement for, broadcasting during emergencies.

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[19] For instance, one can only imagine the zoning and environmental issues (as well as the reaction of many members of the public) associated with building thousands of additional base stations and switching centers.

[20] Todd R. Weiss, *In Emergencies, Can Cell Phone Network Overload be Prevented?*, COMPUTERWORLD, Nov. 5, 2007. Available at http://www.computerworld.com/s/article/9045438/In_emergencies_can_cell_phone_net work_overload_be_prevented_?taxonomyId=15&pageNumber=1.

IV. The Commission Should Make Efforts to Expand Access to Radio and Television Broadcasts Via Mobile Devices and Should Refrain from Actions That Would Inhibit the Development of Mobile DTV and other Broadcast Innovations

As explained above, broadcast technology is, and will continue to be, the optimal method for reaching mass audiences during emergencies. For these reasons, the Commission should work to promote public access to broadcast signals on as many devices as possible, including broadcast chips in mobile phones, and should avoid policies that might limit broadcast innovations that could substantially aid in emergency communications, like Mobile DTV.

a. The Commission Should Support Efforts to Include Broadcast Chips In Mobile Phones

Chips that permit users to access broadcast services on their mobile devices are inexpensive,[21] small, and readily available.[22] Including them inside mobile devices, and making them available to customers wherever they may travel, would enormously increase the accessibility of emergency information. Unlike the text-based commercial mobile alert system (CMAS) being developed by the wireless industry that is not yet available, radio in mobile devices is ready to work today. Additionally and importantly, broadcast radio can work even when cell networks go down, which would hamper any text-based system.

As noted in the FCC's *Future of Media Report*, "FM chips in mobile devices can provide a number of benefits to consumers."[23] During emergencies, broadcast chips

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[21] *Study of FM Radio-Enabled Handsets in the US*, The Insight Research Corporation, at 24 (Sept., 2010).

[22] *Id*. at 8-14.

[23] Steven Waldman, *The Information Needs of Communities: The Changing Media Landscape in a Broadband Age,* at 309 (June 2011) ("The Future of Media Report").

greatly assist listeners trying to get information and, as the *Future of Media Report*

noted, can enhance other emergency notification services. "[A]fter getting a short text

about the emergency, [people] could tune into radio news broadcast for more

information (particularly if congestion on mobile networks or power outages make it hard

to get on the Internet)."[24]

The Commission should seriously consider how it could promote the deployment

of broadcast chips in more mobile devices. Any examination of the reliability of

communications networks during emergencies would be incomplete without due

consideration of the ways increased availability of broadcast technology in mobile

devices will benefit citizens.

b. The Commission Should Carefully Consider the Impact of Spectrum Reallocations on the Dissemination of Information During Emergencies

As the Commission moves forward with potential reallocations of broadcast

television spectrum, it should carefully consider the impact that reallocating spectrum

from free over-the-air television to paid cellular networks will have on the ability of

citizens to receive emergency information, now and in the future.

According to a 2009 study, 88 percent of consumers are interested in watching

local news and information on a mobile device.[25] To provide a viable product that will

satisfy this consumer need, broadcasters must have access to spectrum free of signal

interference. If, as part of the television band reallocations, stations are moved from the

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[24] *Id.*

[25] *See* Frank N. Magid Associates, Inc., *The OMVC Mobile TV Study: Live, Local Programming Will Drive Demand for Mobile TV*, available at www.openmobilevideo.com/_assets/docs/press-releases/2009/OMVC-Mobile-TVStudy-December-2009.pdf.

UHF band to the VHF band, the deployment of mobile DTV will be severely limited. It is well established that operating mobile DTV in the VHF band is very challenging and virtually impossible in low VHF where ground noise causes harmful interference.[26] In light of the role that mobile DTV has played in recent emergencies in other countries, such limitation on the deployment of mobile DTV would not be in the public interest.

Additionally, other proposals, such as forced channel-sharing or spectrum fees, would negatively impact broadcasters' ability to provide mobile services. Limiting broadcasters to 3 MHz or less of spectrum per station would require them to make the Hobson's Choice between providing a proper high-definition primary channel with no mobile DTV feed and a standard definition primary channel with perhaps one mobile DTV feed. In short, such a limitation will severely limit broadcasters' opportunity to develop a market for mobile, to compete against other video services likely to be offered by wireless providers, and to provide important emergency alerts and information via mobile DTV services.

c. Broadcasters Role as "First Informers" Requires Credentialing and Access During Emergencies

One other critical improvement needed to improve network reliability is the formal recognition of broadcasters as "first informers." Specifically, broadcasters need credentialing from state and local authorities to allow them to access their facilities, such as studios and transmitter sites, during emergencies when citizens might otherwise be prevented from accessing certain areas. This will enable radio and television stations to repair or maintain their equipment and fully leverage their resources, local knowledge

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[26] *See Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, Notice of Proposed Rulemaking, ET Docket No. 10-235, 25 FCC Rcd 16498 at 16512 (Nov. 30, 2010) ("NPRM").

and training to keep the public informed during emergencies. While certain states accommodate broadcasters who need to access their facilities,[27] such cooperation is not universal. Broadcasters should also receive priority access to essential supplies, like fuel, that will ensure continuous operation after a disaster. We ask the Commission to support this effort both before Congress and with local and state authorities.

V. Conclusion

Broadcasters appreciate any opportunity to discuss the work that we do, and will continue to do, as "first informers" for our communities. As the Commission examines ways to improve the resiliency and stability of communications networks during emergencies, it is imperative that this examination include consideration of the unique capabilities provided by broadcasting's one-to-many architecture. To promote and improve the ability of American citizens to receive emergency communications, the Commission also should make greater efforts to expand broadcast technology into mobile devices.

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[27] *See, e.g.,* Nev. Rev. Stat. § 414.320, 414.330 (2009); *see also* Wisconsin Broadcasters Association, Wisconsin Broadcaster Emergency Personnel ID Card Program, "In December 2006 … The Wisconsin Department of Justice (began) to issue Broadcaster Emergency Personnel ID cards … to Wisconsin radio and TV station transmitter engineers, to aid them in crossing police lines in times of disaster to keep the transmitter on the air." Available at http://www.wi-broadcasters.org/wba/index.php/emergency-planning/broadcaster-id/.

Respectfully submitted,

Jane E. Mago
Jerianne Timmerman
Scott A. Goodwin

NAB Law Clerks

Ellen Biltz
Chad Kempen
Laura Kieffer

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NATIONAL ASSOCIATION OF BROADCASTERS
1771 N Street, NW
Washington, DC 20036