

**U.S. Senate Committee on Commerce, Science, and Transportation  
Communications, Technology, and the Internet Subcommittee Hearing**

**on**

**“Locating 911 Callers in a Wireless World”**

**Russell Senate Office Building, Room 253  
Washington, District of Columbia**

**January 16, 2014**

**Written Testimony**

**from**

**Claude L. Stout**

**Executive Director**

**Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI)**

Thank you for the opportunity to present this testimony. My name is Claude Stout, and I am the Executive Director of Telecommunications for the Deaf, Inc. (TDI). TDI<sup>1</sup> is a national consumer advocacy organization that shapes an accessible world by ensuring that 48 million Americans who are deaf or hard of hearing<sup>2</sup> have equal access to telecommunications, media and information technology. As a non-technical person, my testimony today will focus on the consumer perspective on the exciting possibilities that can come from improving our access to 9-1-1 services. More specifically, through new and emerging location identifying technologies that can pinpoint the origin of our voice or text calls with enhanced accuracy. I would like to compliment the FCC for its excellent work so far in this important area.

Over the past decade there have been tremendous changes in the way Americans use technology to communicate with and obtain access to emergency services. Deaf and hard of hearing

---

<sup>1</sup> [www.TDIforAccess.org](http://www.TDIforAccess.org)

<sup>2</sup> <http://www.hearingloss.org/content/basic-facts-about-hearing-loss>

Americans are benefiting from this transition also. We no longer rely on legacy TTYs and have moved on with everyone else to using broadband technologies for our communications needs.

Today we use smart phones, tablets, videophones, captioned telephones or desktop computers. We make and receive calls like the rest of you through several different channels. We can have direct or “peer-to-peer” communication with others that use the same devices we are using, for example – we use videophones to converse with each other in sign language.

If we want to call someone that doesn’t know how to sign, or does not use the same devices, we are able to call them indirectly by using a Video Relay Service. There are other different ways deaf and hard of hearing people can contact their family or friends and conduct business affairs, such as through Captioned Telephone Relay Services, or Internet Protocol Relay Service<sup>3</sup>.

Many years ago, when deaf and hard of hearing people had to make an emergency call on the TeleType or “TTY<sup>4</sup>,” we had to dial 9-1-1 on a regular phone and then put the handset on an acoustic coupler in order to transmit and receive tones between the phone and the TTY. If we lose consciousness or just simply don’t have the time or the ability to continue the phone call, we would just drop the handset, and leave it off the hook. Most 9-1-1 centers will still get location details from the Automatic Number Identifier (ANI) and Automatic Location Identifier (ALI)<sup>5</sup> features within the e911 system to detect the originating telephone number and the physical address linked to that number. In the absence of any further verbal (or textual) information, the dispatcher would still verify the call by sending at least a police officer to the site of the incident.

There seems to be a consensus today that despite these advances, there remain challenges with accurate location details when using a wireless phone indoors in an emergency. The FCC exempted indoor locations<sup>6</sup> from its wireless location accuracy rules in 2010 pending further studies and the

---

<sup>3</sup> <http://www.fcc.gov/guides/telecommunications-relay-service-trs>

<sup>4</sup> <http://www.911.gov/911-issues/serving.html>

<sup>5</sup> <http://www.911dispatch.com/911/911glossary.html>

<sup>6</sup> <http://findme911.org/resources/providers-support-moving-forward/>

availability of more accurate and reliable indoor location technologies. Current GPS and other triangulation systems available on most wireless devices today (ie: pagers, phones or tablets) often do not work reliably indoors, and other trilateration “fall-back” systems provide only generalized location information which may cover many city blocks. Particularly if we live or work in multi-story buildings, the responders frequently cannot identify the building address, and most certainly not the apartment or office suite. This is a problematic issue that needs to be addressed.

Others can provide the technical details, but the consumer groups understand from reviewing test results published last year by the FCC’s CSRIC industry advisory group. there are companies working hard to improve location identifying technologies that can not only can determine your location, generally within 50 meters on an horizontal plane, known in the industry as the X-Y coordinates, but can also reliably pinpoint the vertical “Z” coordinates<sup>7</sup> as well within three meters. This helps emergency responders to go directly to the floor and to the room inside the building where the 9-1-1 call originated. When this location information is included with a 9-1-1 call or text, callers and dispatchers can concentrate on the details of the emergency itself and not lose time on trying to describe the location. This would be a huge plus for anyone not familiar with their surroundings such as children, senior citizens, or people just travelling through who are unfamiliar with the territory.

Once the connection is made to the public safety answering point, the location information needs to be immediately and automatically transmitted. This would allow the caller and the dispatcher to give primary focus to the details of the emergency. In the event that the caller was physically unable to provide further information due to deteriorating medical condition such as a heart attack or stroke, deafness or speech disability, or extenuating circumstances where it becomes unsafe to speak such as during a kidnapping or an escalating domestic violence scenario, since the location is already known to the responders, help will be forthcoming much quicker. Even if a heart attack victim was able to initiate a

---

<sup>7</sup><http://www.fcc.gov/document/amending-definition-interconnected-voip-service-section-93-commissions-rules-wireless-e911->

verbal or textual 9-1-1 call on his wireless device, the victim may lose consciousness and become unable to sustain a prolonged conversation with the 9-1-1 dispatcher.

People with visual, speech, cognitive, or mobility disabilities will not have to worry about consuming additional minutes trying to identify their location as technology will provide that data for them immediately. Those that do not have any disabilities will benefit from these new technologies as well.

Like the ANI and ALI features of legacy e911 services, we need the same capabilities to call for help, and then let the location identifying meta-data be instantly transmitted to emergency responders for prompt and timely assistance. Although today's communication networks have become more robust in the last several years, it's reliability still has not yet achieved the same parity with legacy networks. Various systems are still vulnerable to disruptions from natural phenomena and man-made incidents, and any call could be disconnected without any advance warning.

By transmitting key location data at the beginning of each call, the 9-1-1 system would serve as a region-wide "Life Alert" system<sup>8</sup> that would notify the PSAP an emergency has occurred, and to please send help. Senior citizens living alone have relied on such alerting mechanisms, but for us, we are unable to subscribe to these services, usually because it involves a voice telephone call from the "Life Alert" service personnel verifying our emergency prior to notifying the local public safety agencies.

I strongly applaud the FCC, APCO, NENA and the four major wireless carriers, AT&T, Sprint, T-Mobile USA, and Verizon for listening to consumer demands and collaboratively implementing text to 9-1-1<sup>9</sup> and other efforts as part of the Next Generation 9-1-1 (NG-911)<sup>10</sup> efforts. I believe strongly this will be more powerful and useful if precise location information including data on indoor location and floor level where the call originated were included with every voice or text call.

Therefore, my first request is that location technologies deployed to assist emergency wireless

---

<sup>8</sup> <http://www.lifealert.net/home/home.html>

<sup>9</sup> <http://www.fcc.gov/document/chairman-genachowski-announces-commitments-accelerate-text-911>

<sup>10</sup> <http://transition.fcc.gov/pshs/services/911-services/nextgen.html>

calling have a fast enough Time-To-First-Fix, or “TTF” for the precise location information to be included in the initial voice call or text to 9-1-1 message sent to the emergency dispatcher.

My second request is for stricter indoor location accuracy requirements. Current FCC location requirements for outdoor calling<sup>11</sup> requires accuracy of within 50 meters 67% of the time and within 150 meters 90% of the time. This may be adequate to locate a caller outdoors or even indoors in a rural or less dense environment. However, we understand that accuracy requirements less demanding than 50 meters in an urban environment can only provide general location information and may be inadequate to identify the exact building location. In the interest of utmost public safety, this request for accuracy of 50 meters or less needs to be given a very high priority.

My third and final request is to have floor level vertical accuracy location information included with emergency calls or texts, particularly in areas with dense urban and multi-story buildings. Although this attribute may not be as important in rural settings or outdoors, it is critically vital in large multi-story housing and office complexes. We understand the high value that emergency responders place on floor level accuracy as well. It is no less important to the deaf and hard of hearing community and for people with other disabilities.

We deeply appreciate this hearing today, and thank you for the opportunity to express our concerns. Please know that the solutions proposed by industry have the power to save lives by bringing immediate help in time of need. We simply want the same capabilities like anyone else to initiate and participate fully in communications with emergency services. And if for some reason, we are medically or physically unable to communicate our needs to the responders, or understand their instructions, we would still be confident that help would be on its way to us.

Like our family members and friends who can hear, we do pay local property taxes and federal taxes that support our local public safety services, and also pay subscriber fees to access the telephone

---

<sup>11</sup> <http://www.fcc.gov/document/fcc-strengthens-e911-location-accuracy-wireless-services>

networks as a conduit to emergency services. As 9-1-1 centers continue to rely on funding from these sources, so should we rely on them to be fully accessible to every single one of us in the community.

Thank you once again for this opportunity to speak with you today about these important issues.