

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
Wireless E911 Location Accuracy) PS Docket No. 07-114
Requirements)

**COMMENTS OF
TELECOMMUNICATIONS FOR THE DEAF AND HARD OF HEARING, INC
NATIONAL ASSOCIATION OF THE DEAF
ASSOCIATION OF LATE-DEAFENED ADULTS, INC.
CEREBRAL PALSY AND DEAF ORGANIZATION, INC.
CALIFORNIA COALITION OF AGENCIES SERVING THE DEAF AND HARD OF
HEARING
DEAF AND HARD OF HEARING CONSUMER ADVOCACY NETWORK
TECHNOLOGY ACCESS PROGRAM, GALLAUDET UNIVERSITY**

Telecommunications for the Deaf and Hard of Hearing, Inc. (“TDI”), National Association of the Deaf (“NAD”), Association of Late-Deafened Adults, Inc. (“ALDA”), Cerebral Palsy and Deaf Organization (“CPADO”), California Coalition of Agencies Serving the Deaf and Hard of Hearing (“CCASDHH”), Deaf and Hard of Hearing Consumer Advocacy Network (“DHHCAN”), and Technology Access Program, Gallaudet University (“TAP – Gallaudet”), collectively the Consumer Groups and TAP – Gallaudet, provide these comments in response to the Commission’s Third Further Notice of Proposed Rulemaking (“FNPRM”) regarding the urgent need for improvements in wireless E911 indoor location accuracy.¹ Ensuring reliable access to emergency services for all Americans is a critical priority, and improved location identification technology has the ability to dramatically increase the effectiveness of 9-1-1 for individuals with disabilities, including those who are deaf or hard of hearing.

¹ *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, FCC 14-13 (2014) (“FNPRM”).

As the Commission is aware, E911 automatic location capability has its greatest benefit in those circumstances where a caller cannot provide location information directly, such as when they do not know where they are, or if they have a disability and cannot easily communicate with 9-1-1 services, are experiencing stroke, or are in extreme danger.² Rapid, accurate, and automatic location information is a core expectation of the E911 system for all callers, but is particularly critical in cases such as these where automatic location information may be the best or only option. The Consumer Groups and TAP – Gallaudet therefore urge the Commission to move forward quickly with regulations to ensure that the E911 system can meet the expectations of 911 callers, regardless of what phone they use or where they are calling from. In particular, the location accuracy rules should emphasize an expedited deployment or availability of technologies that provide a true “dispatchable address” or sufficiently accurate and reliable horizontal and vertical location information to approximate a dispatchable address for first responders, and delivery of the location information as early as possible in the emergency call, but in no case greater than 30 seconds.

I. LOCATION INFORMATION HAS GREATER VALUE WHEN PROVIDED WITH THE INITIAL E911 CALL

As public safety representatives frequently repeat, in an emergency situation, “time is of the essence.”³ The first job of Public Safety Answering Point (“PSAP”) personnel is to determine where an emergency is so that responders can be accurately directed. In landline calls, location information is reliably and instantly transmitted. Today, however, wireless devices have all but displaced landlines for the vast majority of emergency calls, including those from inside

² *Id.*, ¶ 27 n.54.

³ Comments of the Professional Firefighters Association of New Jersey, WT Docket No. 11-49, at 1 (April 3, 2013) (“*PFANJ Comments*”).

residences and businesses. As a result, location information—when it is available at all—is often provided at a significant delay, such that PSAP personnel must spend time verbally eliciting and verifying the location of the emergency, often rendering any subsequent location information moot.⁴ For individuals who are unable to communicate effectively with the PSAP, identifying the location of the caller can take substantial time, delaying the arrival of assistance by critical minutes.

The Consumer Groups and TAP – Gallaudet are therefore pleased that the Commission’s proposed rules incorporate Time to First Fix (“TTF”) among the indoor location accuracy requirements.⁵ We remind the Commission, however, that the Communications Security, Reliability, and Interoperability Council Working Group 3 (“CSRIC WG3”) has identified 30 seconds as the “de facto standard for *maximum* latency in E-9-1-1 location delivery.”⁶ We recognize that some key technologies currently employed, particularly GPS and other satellite-based technologies, may not consistently provide location information rapidly enough to be included with the initial call, but should generally provide data within the proposed 30 second requirement.⁷ For instance, Verizon has indicated that its average time in which updated location information is available to PSAPs is 12-15 seconds, and that some calls are able to deliver Phase II data with the initial look-up.⁸ Sprint reports that Phase II location calculations generally take

⁴ Remarks of Lisa Hoffman, Workshop on E911 Phase II Location Accuracy, at recording time 1:37:30 (“*Hoffman Remarks*”). The recording of the Commission’s Workshop on E911 Phase II Location Accuracy are available at http://www.youtube.com/watch?v=Kt3lWv_oXNY.

⁵ *FNPRM*, ¶ 144.

⁶ *FNPRM*, ¶ 142 (citing CSRIC III Working Group 3, E9-1-1 Location Accuracy Final Report – Outdoor Location Accuracy at 12 (Mar. 14, 2012)).

⁷ *Id.*, ¶ 143.

⁸ Verizon Ex Parte Letter, PS Docket No. 07-114, at 2 (Nov. 15, 2014).

15-20 seconds.⁹ Fortunately, the record indicates that many of the terrestrial-based technologies can deliver location information significantly more quickly such that location information can be included with the initial call. TruePosition, Polaris, and NextNav all note the speed of location acquisition as a key attribute of their terrestrial-based technologies.¹⁰ Qualcomm's AFLT technology is inherently characterized by TTFF, although when hybridized with GPS, the resultant output becomes more accurate, but the TTFF may be delayed. While this delay may represent a step backward in the capabilities of the E911 system as compared to the speed of landline location delivery, we are encouraged by the ongoing progress. The Consumer Groups and TAP – Gallaudet therefore urge the Commission to consider 30 seconds to be a maximum rather than a target, and continue to encourage carriers to prioritize location delivery as early as possible, ideally concurrent with the connection of the 911 call or text, in order to maximize its value to the PSAP and first responder.

II. INDOOR LOCATION INFORMATION FOR E911 MUST PROVIDE EITHER A DISPATCHABLE ADDRESS OR A SMALL ENOUGH SEARCH RING TO APPROXIMATE AN ADDRESS OR BUILDING

The FNPRM proposes to establish “interim indoor location accuracy metrics that will provide approximate location information sufficient to identify the building for most indoor calls.”¹¹ This initial target of 50 meters for 67 percent of indoor 911 calls within two years represents a reasonable balance between the needs of the public and public safety and the

⁹ Sprint 9-1-1 Overview of the CALNENA E9-1-1 Phase II Location Accuracy FCC Filing, PS Docket 07-114, at 11 (Sep. 26, 2013).

¹⁰ See Remarks of Rob Anderson, Workshop on E911 Phase II Location Accuracy at 3:25:12 (noting the speed of UTDOA fixes); Remarks of David DeLorenzo, Workshop on E911 Phase II Location Accuracy at 3:45:20 (noting that Polaris' TTFF can be set to achieve sub-thirty second response times).

¹¹ *FNPRM*, ¶ 2.

realities of current location technology.¹² Undoubtedly, even at the initial 67 percent threshold, the 50-meter requirement represents a marked improvement over the “impossibly large outdoor search rings and indeterminate indoor search rings” that have confronted first responders to date.¹³ Further, the Commission’s proposal to adopt only one accuracy threshold at 50 meters, and to increase the threshold to 80 percent over time, rather than two thresholds with a second ring at 150 meters, represents a well-documented recognition that any secondary search ring significantly greater than 50 meters would have minimal practical utility for first responders in urban and other indoor emergency environments.¹⁴

The NPRM wisely acknowledges the significant limitations of the proposed rules, and the wide support for development of technology and regulatory requirements toward the delivery of a dispatchable address for all indoor callers.¹⁵ We certainly support this goal, but also caution that the lofty desire for an ideal solution for which there are no currently identified technical solutions should not diminish the real and achievable near-term value of horizontal and vertical accuracy metrics that would dramatically improve the ability of first responders to rapidly locate distressed callers, particularly in indoor and urban environments.

III. FLOOR LEVEL VERTICAL LOCATION INFORMATION IS CRITICAL IN URBAN SETTINGS

One area in which location technologies have shown significant improvement is vertical location accuracy. As multiple commenters have established, indoor location is at once most

¹² *Id.*, ¶ 38.

¹³ Letter from Telford E. Fogerty, III, Director of Government Affairs & Regulatory Counsel, NENA: The 9-1-1 Association, to Julius Knapp, Chief Engineer, Office of Technology, FCC, WT Docket No. 11-49 (filed Mar. 22, 2013), at 2.

¹⁴ *See FNPRM*, ¶ 166.

¹⁵ *FNPRM*, ¶ 117.

unreliable and most critical in urban areas where people live in very close proximity both horizontally and vertically.¹⁶ In these settings, even reasonably accurate X and Y coordinates alone are often insufficient to identify specific apartment, office, or hotel room locations in a multistory building. While precise indoor location, including vertical, is of obvious value for all emergency calls, the particular importance of vertical location in urban and suburban multi-story environments makes it a point of priority for near-term efforts.

As noted by CSRIC and various commenters, “z-axis technology has taken significant strides toward commercial viability.”¹⁷ Although CSRIC WG3 acknowledged that “additional work remains before actionable altitude measurements can be broadly provided and utilized to aid first responder,”¹⁸ it is important to separate long-term goals from practical near-term objectives that can provide enormous value even as development continues. All parties recognize that the eventual ability to digitally map the interior of multistory structures, including vertical altitude elements, and store those in a searchable format, would be of great value, but would require significant effort and time, and may not represent a realistic near-term objective. However, the ability to have a known vertical altitude and compare it to the first responders’ altitude based on their own equipment, would provide immediate value in reducing search time in a practical and achievable manner. Again, the Commission has taken a wise and balanced approach to avoid the trap of the “best being the enemy of the good.”

The Consumer Groups and TAP – Gallaudet therefore strongly support the Commission’s proposed requirement of three meter vertical accuracy for 67 percent of calls within three years

¹⁶ See, e.g., *id.*, ¶ 31; *Hoffman Remarks* at 36:40 and 2:27:35.

¹⁷ *Id.*

¹⁸ *FNPRM*, ¶ 72.

as a near-term benchmark for indoor calls.¹⁹ We also support the Commission's proposal to increase this accuracy requirement to 80 percent over time as improved technology and techniques become more widespread.²⁰ This combination of feasible near term requirements and ongoing evaluation will add impetus to the development of improved vertical location capabilities in emerging technologies.²¹ Accurate and precise vertical location is critical to narrowing down the search area for first responders, and even more so in circumstances where callers may be unable to assist the PSAP in locating them.

IV. CONCLUSION

This FNPRM is an important and timely step toward bringing the function of the E911 system in line with the expectations of the callers that rely on it in their time of need. The Consumer Groups and TAP – Gallaudet support the Commission's core recommendations regarding near-term objectives for horizontal and vertical accuracy, as well as TTFB and yield, and encourages all parties to work together to ensure these objectives can be achieved as soon as technically and practically feasible.

Respectfully submitted,

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¹⁹ *Id.*, ¶ 73.

²⁰ *Id.*, ¶ 134.

²¹ *Id.*, ¶ 72.

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