

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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| In the Matter of |) | |
| |) | |
| Wireless E911 Location Accuracy Requirements |) | WT Docket No. 07-114 |
| |) | |
| Public Safety and Homeland Security Bureau Announces Workshop on E911 Phase II Location Accuracy |) | DA 13-1873 |
| |) | |

**COMMENTS OF
NEXTNAV, LLC**

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SUMMARY

Wireless phones are now an undisputedly ubiquitous and critical link to 911 for much of the population. Estimates from industry groups and the public safety community broadly agree that calls from mobile phones account for more than 70 percent of 911 calls, and many of these calls originate from indoors particularly in urban markets. Despite the prevalence of indoor emergency calls, however, there are currently no rules requiring indoor location accuracy for wireless devices. The lack of accurate location information for wireless devices indoors delays and disrupts emergency response efforts, endangering the public and first responders. Recognizing this, public safety entities have been unequivocal and unanimous in their call for improved wireless indoor location accuracy. Regardless of the device or location of a 911 call, first responders require uniform delivery of rapid, reliable, “actionable location” information to serve the public.

To respond to the needs of consumers and public safety, the Commission should require wireless service providers to adopt indoor location capabilities. The Commission has ample justification and a substantial record on which to adopt a Notice of Proposed Rulemaking proposing sufficiently accurate indoor location capabilities to meet the critical and growing needs of public safety. The capabilities of current and near-future wireless location technologies can provide sufficient horizontal accuracy, vertical accuracy, and yield to warrant the adoption of concrete indoor location accuracy standards consistent with the Commission’s existing outdoor location accuracy rules. The adoption of such rules would ensure the public and public safety community the uniform and reliable E911 location information that they expect and require.

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To: Chief, Wireless Telecommunications Bureau

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NEXTNAV, LLC**

NextNav, LLC (“NextNav”), by its attorneys, hereby responds to the Commission’s Public Notice (“Notice”) seeking comment on wireless E911 location accuracy requirements to support emergency first responders.¹ NextNav writes to draw the Commission’s attention to two critical facts: (1) indoor calls from wireless phones are now a major link to 911 for much of the population, particularly in urban markets, and (2) there are currently no rules requiring indoor location accuracy for such wireless devices. Public safety entities have been unequivocal and unanimous in their call for improved wireless indoor location accuracy, and indoor location technology has matured to the point that the Commission can and should initiate a rulemaking to establish appropriate wireless indoor location standards to support emergency first responders and the public. The Notice raises numerous issues, but these matters – many of which would be

¹ Public Safety and Homeland Security Bureau Announces Workshop on E911 Phase II Location Accuracy, Wireless E911 Location Accuracy Requirements, WT Docket No. 07-114, Public Notice, DA 13-1873 (Sept. 9, 2013) (“Notice”).

best resolved through coordination between public safety and wireless carriers – should not distract from the clear and urgent need for the Commission to adopt location accuracy standards commensurate with the major role that indoor wireless calls now play in public safety emergency response.

I. A SUBSTANTIAL AND GROWING PERCENTAGE OF 911 CALLS ARE NOW INDOOR WIRELESS CALLS

As the Commission acknowledges in its Notice, the use by consumers of wireless devices has expanded significantly. The Notice recognizes that “Americans are not only using wireless phones for a greater percentage of calls, they are increasingly using wireless phones for all calls, including calls to 911 from indoor environments.”²

The transition to wireless devices has been a long term trend. In fact, the Commission recognized nearly a decade ago the increased use of wireless calling and the importance of achieving accurate location information for callers using wireless handsets. To address this transition, the Commission first proposed rules in 1994 requiring wireless location information,³ at which time around 24 million subscribers were using wireless phones, and the number of

² See *id.* at 1 (citing J.D. Power’s *2011 Wireless Call Quality Study – Volume 1*, which indicated that, during the second half of 2010, an average of 56 percent of wireless calls were made from indoors, up from 40 percent in 2003. See J.D. Power and Associates, 2011 U.S. Wireless Call Quality Performance Study, Volume 1, available at <http://www.jdpower.com/content/press-release/Kp2D0Ys/wireless-call-quality-performance-study.htm> (last visited Sept. 9, 2013); see also *For 911, is a Cell Phone as Safe as a Landline?*, CONSUMER REPORTS MAGAZINE, (Jan. 2011), available at <http://www.consumerreports.org/cro/magazinearchive/2011/january/electronics/best-cell-phones/911-from-cell-phone/index.htm> (last visited Sept. 9, 2013) (reporting that, in 2011, 60 percent of 911 calls were placed through wireless phones).

³ See Revision of the Commission’s Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, FCC 96-264, *Report and Order and Further Notice of Proposed Rulemaking*, ¶ 6 (July 26, 1996) (“*First Report & Order*”).

subscribers was already increasing by nearly 10 million per year.⁴ Today, the number of wireless subscribers has continued to increase exponentially, with more than 326 million wireless devices in use in 2012,⁵ and with an even greater percentage increase in the number of wireless E911 calls (from less than 18 million wireless E911 calls in 1994⁶ to more than 145 million wireless E911 calls in 2012).⁷ The rapid transition of consumers to an overwhelming reliance on wireless devices for critical E911 communications is clear and the status quo of unreliable location services for wireless calls made indoors is unacceptable for both the public and for emergency first responders.

II. EMERGENCY FIRST RESPONDERS REQUIRE ACCURATE INDOOR 911 LOCATION INFORMATION TO SERVE THE PUBLIC RELIABLY

As the Commission has repeatedly acknowledged, accurate E911 location information speeds dispatch, increases public safety, and improves outcomes. This fundamental truth was the basis for the Commission's original wireline E911 rules as well as the wireless E911 rules. The Commission's E911 rules have evolved with consumer technology to ensure that, no matter how someone reached 911, first responders could accurately reach them.

The public safety community has repeatedly expressed the need for Commission action to facilitate near term improvements in indoor wireless location accuracy. The CSRIC Test Bed Report underscored the foundational requirement that wireless location technologies be able to

⁴ *See id.*

⁵ *See* CTIA, Wireless Quick Facts, Year-End Figures, available at http://www.ctia.org/media/industry_info/index.cfm/AID/10323 (last visited Aug. 13, 2013) (“CTIA Year-End Figures”).

⁶ *First Report & Order*, ¶ 6.

⁷ *See CTIA Year-End Figures.*

provide “actionable location” data, which effectively means “a specific dispatch-able building and floor” or, lacking a building address and floor, “the smallest possible search ring.”⁸

National, state, and local public safety organizations echo these sentiments, explaining that “accurate caller location information to [PSAPs] speeds dispatch, saving lives and property.”⁹ Unfortunately, as first responders and the Commission are well aware, “[c]ell phone calls from indoors and in urban canyons are often unable to report accurate information in a timely manner, if at all.”¹⁰ Despite the improvements in E911, “current generation location technology is often unable to accurately locate callers indoors, especially in multi-story buildings. This shortcoming increases when the size of buildings grow.”¹¹ “Mobile phones are used for more than 70 percent of 9-1-1 calls, and many of these calls are placed indoors where location information is often unreliable or unavailable.”¹²

The findings of numerous public safety organizations and consumer organizations provide further support for these conclusions. The State of Connecticut Department of Emergency Services explains that “the replacement of wire line telephony by wireless devices for many of our citizens has underlined the need for accurate location information inside of

⁸ See “*Indoor Location Test Bed Report*,” CSRIC III, Working Group 3, *Public Safety Forward* at 9 (March 14, 2013) (“*CSRIC Test Bed Report*”).

⁹ *Id.*

¹⁰ *Id.*

¹¹ Comments of Telecommunications for the Deaf & Hard of Hearing, Inc., WT Docket No. 11-49, at 2 (April 12, 2013) (“*TDHH Comments*”); see also Comments of the International Association of Fire Fighters, WT Docket No. 11-49, at 1 (March 25, 2013) (“*IAFF Comments*”) (explaining that “signal reception challenges presented by large institutional structures and tall buildings can also delay the arrival of assistance when emergency responders cannot locate victims quickly”).

¹² Comments of the International Associations of Chiefs of Police, WT Docket No. 11-49, at 1 (March 29, 2013).

buildings, including ‘z’ axis information.”¹³ The Minnesota Department of Emergency Services notes that the “accuracy provided by current E911 location technologies is often dramatically insufficient, providing search rings which can contain multiple city blocks and include thousands of apartments in multistory buildings.”¹⁴ These limitations are particularly acute for callers that may be unable to provide additional location information. Advocates for the deaf and hard of hearing note that it is critical that the Commission ensure that the 911 system meet the expectations of consumers that when they call 911, a belief that first responders will be able to locate them regardless of the device or location from which the call originates.¹⁵ NENA has further explained that “[a]ny significant improvement over the current regime of impossibly-large outdoor search rings and indeterminate indoor search rings must be encouraged, whether or not it can reach our ultimate ideal right away.”¹⁶

The unreliability and unavailability of indoor location information affects not just potential victims, but also first responders. The International Association of Fire Fighters explains that the same indoor location accuracy technology that can improve safety for 911 callers “would be equally valuable to incident commanders seeking to maintain situational awareness and personnel management.”¹⁷ Technology that can “provide the capability to both

¹³ Comments of the State of Connecticut Department of Emergency Services and Public Protection, PS Docket Nos. 10-255, 11-153, and 12-333, at 8 (Dec. 12, 2012).

¹⁴ Comments of the Minnesota Metropolitan Emergency Services Board and the Minnesota Department of Public Safety, WT Docket No. 11-49, at 1 (April 18, 2013); *see also* Comments of the National Sheriffs’ Association, WT Docket No. 11-49, at 1 (April 3, 2013) (noting that “[i]mproving the ability of dispatchers and first responders to locate [indoor] callers has become an important public safety issue”).

¹⁵ *TDHH Comments* at 1-2.

¹⁶ *Comments of NENA, the E9-1-1 Association*, WT Docket No. 11-49, at 2 (March 22, 2013).

¹⁷ *IAFF Comments* at 2.

rapidly locate victims and fallen rescuers, with precise horizontal and vertical accuracy, indoors and out, can only improve first responder performance, safety and outcomes.”¹⁸

The need for improved location accuracy in urban areas is clear, particularly in those places that current generation technologies are least available, such as indoors in large buildings. Fortunately, as discussed in these comments, many next generation technologies are now available to fill this critical need. The Commission should therefore heed the call of the public safety community to take the steps necessary to ensure this improved information is available to consumers and first responders without delay.

III. TO PRESERVE THE INTEGRITY OF THE E911 EMERGENCY RESPONSE PROCESS, THE COMMISSION SHOULD REQUIRE WIRELESS SERVICE PROVIDERS TO ADOPT AND VERIFY THE PERFORMANCE OF INDOOR LOCATION CAPABILITIES

In its Notice, the Commission raises a fundamental question – “In light of the expanding role of wireless technology in communicating with emergency services, are there regulatory gaps in the Commission’s E911 rules?”¹⁹

Obviously, such a gap does exist and it exists because the Commission’s wireless location accuracy rules are currently interpreted to apply only to outdoor locations even though E911 emergency calls are made just as frequently, if not more frequently, from indoor locations. The Commission’s rules for handset-based wireless location services require accuracy of 50 meters or better for 67 percent of E911 calls received by a wireless carrier and 150 meter accuracy or better eventually for 90 percent of E911 calls received by a carrier.²⁰ In 2010,

¹⁸ *PFANJ Comments* at 1-2.

¹⁹ *Notice* at 3.

²⁰ *See* 47 C.F.R. § 20.18.

however, at the urging of the wireless industry, the Commission concluded that these requirements would apply only to wireless calls made from outdoor locations pending further study of indoor location capabilities.²¹

The Commission reached its 2010 decision after major wireless carriers and public safety organizations announced that they would participate in an industry group or a technical advisory group to evaluate technologies for locating wireless callers in indoor locations. Given the significant investigation and development that has now been conducted by the Commission's Communications Security, Reliability, and Interoperability Council ("CSRIC") and by the wireless industry, it would now be appropriate to eliminate the exemption for indoor location of wireless E911 calls and to establish initial indoor location rules that mirror the existing outdoor requirements. In other words, the Commission should extend the current outdoor rules of 50m/67% and 150m/90% to indoor locations. As discussed below, multiple indoor location technology vendors have already indicated for the record that their technology can satisfy the 50m/67% and 150m/90% requirements for wireless calls to E911 from indoor locations. Therefore, such action by the Commission is already well supported by the public record of this docket.

IV. WIRELESS LOCATION TECHNOLOGIES CAN NOW ACHIEVE HIGHLY ACCURATE INDOOR LOCATION CAPABILITIES AS REQUIRED BY PUBLIC SAFETY

The Commission's record in its indoor location accuracy docket has identified three critical factors when assessing the accuracy of wireless indoor location capabilities – horizontal accuracy, vertical accuracy and yield. As discussed in the following subsections, multiple

²¹ See *Wireless E911 Location Accuracy Requirements*, FCC 10-176, Second Report and Order, ¶ 29 (Sept. 23, 2010) ("*Wireless Location Accuracy Second Report & Order*").

location service vendors, including NextNav, have developed technologies that can satisfy each of these requirements sufficiently for the Commission to apply its existing handset based outdoor requirements to indoor locations. Further, these vendors are actively working to further improve their technologies and so the performance will only continue to improve from here.

A. Indoor Location Accuracy Technologies are Sufficient to Provide Horizontal Accuracy Commensurate With the Commission’s Outdoor Requirements

The ultimate goal for horizontal location capabilities in indoor locations was specifically addressed by the public safety community in its Foreword to the CSRIC Test Bed Report.²² Ideally, public safety seeks the identification of a “specific dispatch-able building (and floor in multi-story environments).”²³ Quantifying this requirement, the public safety community explains

[h]orizontal positional fixes that substantially exceed 50 meter accuracy, provides only general location information. Tighter performance is required, particularly in urban and dense urban environments to narrow the search ring to a single building or a more reasonable number of adjacent buildings.²⁴

The indoor location technologies of NextNav and other vendors can satisfy this 50 meter accuracy requirement in a large percentage of instances. The CSRIC Test Bed Report verified that NextNav’s technology could achieve horizontal accuracy findings that were either in or adjacent to the building of the test location in more than 80 percent of tests conducted. Further,

²² See *CSRIC Test Bed Report* at 9.

²³ *Id.*

²⁴ *Id.*

as NextNav explained in its recent August 14, 2013 *ex parte* letter in this docket,²⁵ more recent enhancements to NextNav’s technology consistently surpass public safety’s goal of at least 50 meter accuracy, providing search rings of less than 50 meters for at least 67 percent of the calls in each of the critical morphologies – dense urban, urban, and suburban environments,²⁶ and search rings of less than 35 meters for at least 90 percent of calls in suburban environments. Significant additional detail regarding these test results are provided in NextNav’s August 14th filing.

Multiple other location technology vendors have also indicated for the record that their technology can satisfy the 50m/67% and 150m/90% requirements for wireless calls to E911 from indoor locations. The CSRIC Working Group 3 LBS Report canvassed technology providers and reported to the Commission that many of those vendors indicated that their technologies could satisfy its Phase II handset-based accuracy requirements in indoor locations, including Navizon’s Wi-Fi Access Point location technology,²⁷ Skyhook’s Wi-Fi location technology,²⁸ NextNav’s beacon technology,²⁹ and CSR’s hybrid A-GPS/Wi-Fi technology.³⁰

²⁵ See Letter from Bruce A. Olcott, Counsel, Progeny, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 07-114 (filed Aug. 14, 2013) (“*NextNav Aug. 14th Letter*”).

²⁶ NextNav’s technology enhancements were not tested in a rural environment given the level of performance already documented with its initial technology during the original CSRIC test bed.

²⁷ CSRIC Working Group 3, E9-1-1 Location Accuracy, *Report – Leveraging LBS and Emerging Location Technologies for Indoor Wireless E9-1-1* at 21 (March 14, 2013) (“*CSRIC LBS Report*”).

²⁸ See *id.* at 26.

²⁹ See *id.* at 33.

³⁰ See *id.* at 54.

In advocating for the Commission’s application of its 50m/67% and 150m/90% standard for indoor locations, NextNav acknowledges that a key finding of CSRIC III Working Group 3 was that the need of public safety for highly accurate indoor location capabilities is actually greater than what is required for outdoor location accuracy due to the inherently greater difficulty in locating calling parties indoors in a metropolitan environment. Therefore, although public safety clearly expressed a desire to have consistent position fixes not substantially greater than 50 meters (and with a vertical component), at a minimum the Commission should initially require indoor accuracy standards no less than the outdoor accuracy standards of 50 meters at least 67 percent of the time and 150 meters at least 90 percent of the time. This could be tightened over time to further increase the percentage of fixes within 50 meters, potentially reaching 80 percent or more at some subsequent milestone. Based on the test results and representations made by multiple location technology vendors, it is reasonable for the Commission to conclude that these horizontal accuracy targets can be achieved.

B. Indoor Location Technologies can also Achieve Highly Accurate Vertical Location Capabilities

The Commission’s Notice requests comment on the potential for current location technologies to provide vertical location (z-axis) information in addition to horizontal location (x-and y-axis) information.³¹ The Public Safety Foreword to the CSRIC Test Bed Report observes that “floor level vertical accuracy is valuable in large multi-story structures common in urban and dense urban morphologies.”³² CSRIC’s conclusion in this regard is consistent with the long standing position of the public safety community, the representatives of which have

³¹ *See Notice* at 3.

³² *CSRIC Test Bed Report* at 8.

been arguing for years that the delivery of vertical-axis position information should be “required for future-generation networks and devices, under uniform standards.”³³

Consistent with public safety’s views, the Commission has been considering the potential benefits of adopting vertical location accuracy requirements ever since its rules for wireless location accuracy were first proposed. In the Commission’s 1994 Notice of Proposed Rulemaking on wireless location requirements, the Commission tentatively concluded that its proposed locations rules should be applicable to both the horizontal and vertical dimensions.³⁴ The Commission did not include the vertical requirement in the rules that it adopted in 1996, however, based on arguments from commenters that reasonably accurate vertical information may not be technically achievable within the immediate five years and would primarily benefit public safety only in downtown areas of major cities.³⁵ Since that time, location technology has advanced substantially and multiple location technology vendors are now capable of satisfying vertical location requirements. Further, the potential public safety benefits of vertical location information have been more thoroughly identified and explained by the public safety community.

With respect to the vertical location capabilities of NextNav’s technology, the CSRIC Test Bed Report documented that NextNav’s technological approach could achieve very precise vertical accuracy across all locations, with a median accuracy of 2 meters (essentially “floor

³³ *Comments of NENA, the E9-1-1 Association*, Docket Nos. 05-196 & 07-114, at 11 (filed Jan. 19, 2011).

³⁴ Revision of the Commission’s Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket 94-102, RM-8143, *Notice of Proposed Rulemaking*, 9 FCC Rcd 6170, 6178-79 (¶¶ 49-51) (1994).

³⁵ See Revision of the Commission’s Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, FCC 96-264, *Report and Order and Further Notice of Proposed Rulemaking*, ¶ 70 (July 26, 1996) (“*First Report & Order*”).

level”), even in large multistory buildings. As detailed in NextNav’s August 14th *ex parte* letter, enhancements to NextNav’s capability since that time have further improved on its capabilities, demonstrating reliability of about 1 to 2 meter vertical accuracy for at least 67 percent of E911 calls regardless of urban morphology.³⁶

NextNav is not alone in commercializing vertical indoor location capabilities. The CSRIC report on leveraging LBS and emerging technologies noted several technologies capable of providing vertical location accuracy including Observed Time Difference of Arrival technologies,³⁷ Distributed Access System proximity-based location technologies,³⁸ and hybrid A-GPS technologies.³⁹ Although NextNav’s particular approach to vertical accuracy involving real-time calibration of pressure sensors was the only approach proven in the CSRIC test-bed to provide a very high level of accuracy, the underlying use of miniature pressure sensors in handsets is a technique numerous other vendors have noted can be supported by their systems as well.⁴⁰

Given these facts, it is reasonable to conclude that, by the effective date of the Commission’s rules, indoor location services could support vertical location accuracy requirements in the range of 3 to 5 meters. Further, these capabilities could eventually be strengthened to within 3 meters over time (generally considered as “floor level” or “near floor

³⁶ See *NextNav August 14th Letter*.

³⁷ *CSRIC LBS Report* at 37 and 40.

³⁸ See *id.* at 49.

³⁹ See *id.* at 54.

⁴⁰ *Id.* at 53 (noting CSR’s use of MEMs pressure sensors for vertical location information); Comments of TruePosition, Inc., PS Docket 07-114, et. al, at 24 n.46 (Aug. 6, 2013) (“*TruePosition Initial Comments*”) (asserting that pressure sensors “can be used with any location technology solution” to provider vertical location information).

level” accuracy) and would truly fulfill the express and critical needs of emergency first responders.

C. Indoor Location Technologies can also Achieve Very High Levels of Yield

The third critical factor in assessing the capabilities of indoor location technologies is yield – *i.e.*, the percentage of time that a technology succeeds in achieving a reasonably accurate location fix for a wireless device. Considered at the most basic, indoor location technologies should be able to identify within an established minimum level of accuracy the location of any wireless handset that is sufficiently within the reception range of its network to initiate and complete an E911 call for emergency assistance. As explained by some of the participants in the CSRIC Working Group 3 report on outdoor location testing, “[a]ccuracy testing that ignores or side-steps [the issue of yield] can present an inaccurate and misleading picture of the accuracy that will actually be delivered to the public safety community.”⁴¹

Many technologies tested in the CSRIC process showed impressive yield performance.⁴² Although they did not participate in the CSRIC test bed, an additional technology vendor, TruePosition, has filed subsequent test results indicating that a hybrid combination of A-GPS and Uplink Time Difference of Arrival (“UTDOA”) can achieve yield capabilities of 100 percent.⁴³ Also in subsequent testing, NextNav has demonstrated an assisted mode of operation (similar to A-GPS) that enables timing and ranging information to be extracted from signals that are too weak to demodulate. This “assisted mode” operation provided very high yield statistics in the

⁴¹ *Final Report – Outdoor Location Accuracy*, CSRIC III, Working Group 3, at 29 (March 14, 2012) (“*CSRIC III Outdoor Location Report*”).

⁴² *See, e.g., CSRIC Test Bed Report* at 54 (noting that “all technologies tested demonstrated relatively high yield and various levels of accuracy in indoor environments”).

⁴³ *See TruePosition Initial Comments* at 20-21.

range of 97 to 99.9 percent depending on morphology, a further improvement upon the roughly 95 percent Urban and Dense Urban yield achieved in the original CSRIC testing.⁴⁴

Given the widespread capability for indoor location technologies to achieve very high yield levels, it would be reasonable for the Commission to conclude that if a wireless device is able to place an E911 call from an indoor location, the indoor location service provider should be able to provide a location fix for that device in the vast majority of cases. Ideally, this would be achieved by requiring that all E911 test calls from wireless handsets be included in the calculations that are used to determine whether the applicable standard (*i.e.*, 50m/67% and 150m/90%) has been satisfied. Alternatively, the Commission might conclude that only the universe of Phase II fixes be included in testing accuracy calculations (as was done in the CSRIC Test Bed Report), but that any indoor testing program achieve an acceptably high yield (95 percent as an example) to be deemed compliant with the Commission's requirements.⁴⁵

Finally, given the amount of attention generated by a recent filing by CalNENA, which highlighted the disparity that exists between various yield metrics, it is important to separate the various operational issues involved from the overarching technology and policy issues.⁴⁶ Operational issues including varying timer intervals for carriers to provide Phase II location

⁴⁴ The results are explained further in NextNav's August 14 *ex parte* letter.

⁴⁵ The practical implications of a significant disparity in yields between different technologies is that comparing accuracy statistics between a technology achieving 99 percent yield versus one achieving 90 percent yield is relatively meaningless, particularly at the 90th and 95th percentiles. The latter technology may report average accuracy statistics that are as good as or better than the former technology because the former technology's accuracy statistics may be burdened by the potentially poor location fixes that were achieved for the nine percent of calls that the latter technology failed to yield and therefore did not count.

⁴⁶ See Letter from Danita L. Crombach, ENP, The California Chapter of the National Emergency Number Association, to The Honorable Mignon Clyburn, Chairwoman, Federal Communications Commission (Aug. 12, 2013).

information, manual or automatic re-bidding procedures at different PSAPs, and call routing on Phase I information may significantly narrow the performance differences noted by the CalNENA report and the various carrier responses. Evidence of these operational variations may exist in the statistical data provided by the King County Office of Emergency Management on this date.⁴⁷ Such operational issues are arguably best resolved by a cooperative effort of PSAPs and carriers to improve their procedures through automated rebidding and reduced time intervals to provide Phase II information. The overarching policy and technology issue, however, remains the simple fact that both yield and accuracy are more difficult to achieve in urban and indoor environments, the very environments where reliable and accurate location information is most critical for first responders trying to reach and provide assistance to individuals in their time of need.

V. CONCLUSION

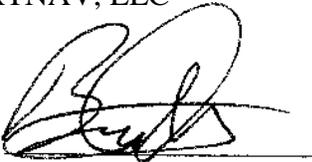
The Commission's Notice raises a number of detailed questions regarding the growing use of wireless devices to contact E911 emergency services from indoor locations. Some of the questions focus on the specifics of current network implementations and operations between the PSAPs and the wireless carriers and seek to clarify the underlying data and establish best operational practices to address current operations. Other questions reach the more fundamental issue of the impact that dramatically increased reliance on indoor wireless communications is having on emergency calling and the ability to reliably and accurately locate callers in distress in

⁴⁷ See Letter from Marlys R. Davis, E911 Program Manager, King County E-911 Program Office, Office of Emergency Management, to Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket No. 07-114 (Sept. 25, -013). The King County data differs significantly from the CalNENA data in that the King County data appears based on controlled testing data with automatic rebids, while CalNENA provides ongoing operational data with manual rebid procedures. The King County data again highlights the lower yield (and likely lower accuracy) currently associated with indoor calls.

these environments. The substantial record in this docket clearly documents the growing use of wireless devices to contact emergency services from indoor locations, and the current interpretation of Commission rules as requiring location capabilities for wireless E911 calls only from outdoor locations. These two demonstrated facts stand in direct conflict and should be addressed by the Commission expeditiously through the adoption of a Notice of Proposed Rulemaking proposing sufficiently accurate indoor location capabilities to meet the critical and growing needs of public safety.

Respectfully submitted,

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