Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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

REPLY COMMENTS OF CTIA

CTIA respectfully submits these reply comments in response to the Public Notice seeking comment on the Vertical (Z-Axis) Accuracy Metric Proposed by the Nationwide Wireless Carriers.[1]

I. INTRODUCTION AND SUMMARY

The wireless industry is committed to providing the public safety community with the most accurate, actionable location information to use in responding to wireless 9-1-1 calls—including solutions to enable "floor level" accuracy information for in-building 9-1-1 calls. As CTIA has affirmed, the nationwide wireless providers are committed to delivering dispatchable location (DL) information and have continued to deliver on the DL commitment consistent with the Commission's *Fourth Report & Order*.[2] At the same time, the wireless industry is also committed to identifying an actionable Z-Axis metric for vertical location information as a "backstop" to DL consistent with the *Fourth Report & Order*.[3]

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[1] Public Safety and Homeland Security Bureau Seeks Comment on Vertical (Z-Axis) Accuracy Metric Proposed by the Nationwide Wireless Carriers, *Public Notice*, DA 18-928 (rel. Sept. 10, 2018).

[2] *See* Letter from Matthew Gerst, Assistant Vice President, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 2 (Oct. 1, 2018) (CTIA Letter); *Wireless E911 Location Accuracy Requirements*, Fourth Report and Order, 30 FCC Rcd 1259 (2015) (*Fourth Report & Order*).

[3] *See* CTIA Letter at 2 n.3 (quoting *Fourth Report & Order*, 30 FCC Rcd at 1271, 1319 (recognizing DL as the "preferabl[e]" indoor location solution and the Z-Axis metric as a "backstop")).

For these reasons, CTIA and the nationwide wireless providers encourage the Commission to await the results of further Z-Axis testing of available and emerging vertical location technology solutions before adopting a Z-Axis metric in advance of the *Fourth Report & Order's* 2021 and 2023 benchmarks. Further testing of vertical location technology solutions will help the Commission, public safety stakeholders, and wireless providers identify a more accurate Z-Axis metric that can be validated and supported by results in the Test Bed.

II. THE *FOURTH REPORT & ORDER* REQUIRES THAT THE Z-AXIS METRIC BE VALIDATED BY AN INDEPENDENTLY ADMINISTERED TEST BED PROCESS AND SUPPORTED BY ITS RESULTS.

As a preliminary matter, CTIA recounts the process utilized by the 9-1-1 Location Technologies Test Bed LLC (Test Bed) to test available Z-Axis solutions, as well as to develop the metric submitted on August 3, 2018.[4] The *Fourth Report & Order* and Section 20.18 of the Commission's rules require the nationwide wireless providers to use an independently administered and transparent test bed process to submit, by August 3, a proposed Z-Axis accuracy metric "validated" by the test bed and "supported by a report of the results of such development and testing."[5] The Test Bed established just such a test bed process "to develop and validate a proposed Z-axis (vertical) metric…."[6] The Test Bed publicly solicited any and all technology vendors to participate in the testing, and two vendors with barometric pressure

[4] *See* Letter from Scott K. Bergmann, Senior Vice President, Regulatory Affairs, CTIA *et al.*, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Aug. 3, 2018) (CTIA Z-Axis Letter) and Attachment, 911 Location Test Bed, LLC, Report on Stage Z (Z-Axis Test Bed Report).

[5] 47 C.F.R. § 20.18(i)(2)(ii)(B) ("Nationwide CMRS providers shall develop one or more z-axis accuracy metrics *validated* by an independently administered and transparent test bed process, as described in paragraph (i)(3)(i) of this section, and shall submit the proposed metric or metrics, *supported by a report of the results of such development and testing*, to the Commission for approval.") (emphases added); *see also Fourth Report & Order*, 30 FCC Rcd at 1304 (requiring the nationwide CMRS providers "to use an independently administered and transparent test bed process to develop a proposed z-axis accuracy metric").

[6] Z-Axis Test Bed Report at 3.

sensor based solutions, NextNav and Polaris Wireless, "volunteered, formally applied, and participated…."[7]

As CTIA explained in its cover letter submitting the Z-Axis Test Bed Report, the results provided "helpful insight" to the state of Z-Axis technologies, but also demonstrated that "significant questions remain about performance and scalability in live wireless 9-1-1 calling environments."[8] Nonetheless, as noted above, the Commission's rules required the nationwide wireless providers to submit a Z-Axis metric on August 3, 2018 that was "validated" and "supported" by the test bed process.[9] As a result of the Test Bed's Z-Axis Report, CTIA, on behalf of the nationwide wireless providers, proposed a Z-Axis metric of ±5 meters for 80% of fixes.[10] The results of the Z-Axis Report did not validate that a more accurate metric could be consistently achieved across all testing regions, morphologies, weather conditions, and devices as of August 2018. Thus, CTIA recommended that the Commission and public safety stakeholders support further testing of available and emerging vertical location solutions that could yield results to validate adoption of a more accurate Z-Axis metric.[11]

III. THE COMMISSION AND PUBLIC SAFETY STAKEHOLDERS SHOULD ENCOURAGE FURTHER TESTING TO ADVANCE A Z-AXIS METRIC THAT FACILITATES FLOOR LEVEL ACCURACY INFORMATION.

CTIA and the nationwide wireless providers continue to strongly encourage the Commission and public safety stakeholders to support further Z-Axis testing to validate a more accurate Z-Axis metric that can support floor level accuracy information. As Verizon explained,

[7] *Id.*

[8] CTIA Z-Axis Letter at 5.

[9] Z-Axis Test Bed Report at 3.

[10] CTIA Z-Axis Letter at 6.

[11] *Id.*

"it is premature to adopt ±5 meters as the Z-axis standard at this time. Rather, it would be better to step up efforts to advance location solutions that pave a path to the ultimate goal of 'floor level' accuracy."[12] Notably, NENA and the Florida Department of Management Services, Division of Telecommunications, Bureau of Public Safety support additional testing for this purpose.[13]

Importantly, CTIA and the nationwide wireless providers are eager to launch another round of Z-Axis testing to evaluate available and emerging vertical location solutions. To date, only barometric pressure sensor based Z-Axis technology solutions have been tested in the Test Bed, and those solutions were either not tested in key test regions or without support for major handsets. CTIA and nationwide wireless providers expect that new and emerging vertical location technologies including, for example, 3D WiFi will be part of the next round of Z-Axis testing in 2019, in addition to a more complete test of available barometric pressure sensor based solutions.

Additional testing can not only validate and support a more accurate Z-Axis metric, but can examine technologies that can scale more readily to meet the *Fourth Report & Order's* 2021 and 2023 benchmarks. In particular, technologies like 3D WiFi could be supported by many existing wireless handsets nationwide, while barometric pressure sensor based solutions may require dedicated hardware available in only more recent wireless handsets and, in some cases,

[12] Letter from Robert G. Morse, Associate General Counsel, Federal Regulatory and Legal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 1 (filed Sept. 28, 2018) (Verizon Comments).

[13] *See* Comments of NENA: The 9-1-1 Association, PS Docket No. 07-114, at 1-2 (filed Oct. 2, 2018) (NENA Comments) (supporting CTIA's request to refrain from adopting a metric to allow for a more accurate Z-Axis metric to be validated and supported); Comments of State of Florida Department of Management Services, Division of Telecommunications, Bureau of Public Safety, PS Docket No. 07-114 (filed Sept. 28, 2018) (recommending that more devices and platforms be tested).

dedicated network infrastructure limited to markets chosen by the solution provider. Thus, the Commission, public safety stakeholders, and wireless providers should consider the performance of new and emerging vertical location technologies before adopting a Z-Axis metric to meet the requirements of the *Fourth Report & Order*.

Further, as the Commission moves towards adopting a Z-Axis metric, CTIA urges the Commission to consider several key points. First, as noted, it is premature to adopt a Z-Axis metric as public safety—and industry—desire a more accurate metric. Yet it is critical that the Z-Axis metric meet the standard for adoption set forth in the *Fourth Report & Order*: any metric must be "validated" and "supported" by Test Bed results. As then-Commissioner Pai observed about 9-1-1 location accuracy requirements in 2014:

> The Commission's rules should be more than aspirational. Our rulemaking process is not a feel-good exercise. It imposes legally binding obligations on regulated entities. It is unfair to saddle them with obligations that cannot be met. And such rules don't help the American people either. Indeed, they can be counterproductive since they stand a good chance of sparking litigation or paralyzing the industry with fear of taking any action if there is no clear path to compliance.[14]

Importantly, CTIA and the nationwide wireless providers share public safety's desire for a more accurate Z-Axis metric, and our commitment to further testing reflects that goal. Ultimately, however, a more accurate Z-Axis metric only aids public safety to the extent it can actually and consistently be achieved. In this regard, BRETSA makes the point that a location solution is only as good as the technology and deployment it relies on, and wireless service providers should "only be required to comply with the actual level of accuracy achieved in proof-of-performance

[14] *Wireless E911 Location Accuracy Requirements*, Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 2374, 2465 (2014) (Statement of Commissioner Ajit Pai Approving in Part and Concurring in Part)

testing." [15] As Chairman Pai had aptly suggested, "aspirational" rules do not achieve progress, particularly for public safety.

Second, the Commission should encourage the Test Bed to continue its work toward identifying a more accurate Z-Axis metric in the form of meters (altitude) that can support floor level accuracy information as a "backstop" to DL. The *Fourth Report & Order* declined to "support immediate adoption of a three-meter standard to provide PSAPs with accurate floor-level information" given concerns in the record about the feasibility of achieving that standard.[16] In its comments, NENA returned to that metric and proposed defining "floor-level' accuracy" as "± 3 meters accuracy."[17] CTIA is actively working to ensure the Test Bed is available for further testing of existing and emerging vertical location technologies which could identify a more accurate Z-Axis metric, such as ± 3 meters that is validated and supported by Test Bed results.

Despite this practical approach, NextNav urges the Commission to act now to adopt a ±3 meter metric even while further testing is conducted.[18] However, the Commission should not adopt a metric based on NextNav's solution until it fulfills the Z-Axis testing criteria developed by the Alliance for Telecommunications Industry Solutions' (ATIS) Emergency Services Interconnection Forum (ESIF). Specifically, NextNav declined to test its solution in the more extreme weather conditions of Chicago—a testing environment that is necessary to validate and

[15] Comments of the Boulder Regional Emergency Telephone Service Authority, PS Docket No. 07-114, at 4-5 (filed Oct. 1, 2018).

[16] *Fourth Report & Order* ¶ 113; *see id.* ("We find that it is reasonable to establish a z-axis metric standard for vertical accuracy as an alternative to providing floor-level accuracy by means of dispatchable location.").

[17] NENA Comments at 3; *see also* Comments of the National Public Safety Telecommunications Council, PS Docket No. 07-114, at 7 (filed Oct. 1, 2018) ("Ideally, PSAPs and first responders need to have information showing the building floor or level number. If vertical information cannot be reported in those terms, reporting the height above ground level would be a preferable approach….").

[18] Comments of NextNav, LLC, PS Docket No. 07-114, at 18 (filed Oct. 1, 2018).

support a Z-Axis metric, particularly for barometric pressure sensor based technologies.[19] Put simply, regardless of NextNav's claims otherwise, additional testing is required for the independently administered test bed process to validate and support a more accurate Z-Axis metric, including ± 3 meters.

IV. AS THE COMMISSION MOVES FORWARD WITH Z-AXIS, CTIA REITERATES THE WIRELESS INDUSTRY'S COMMITMENT TO DISPATCHABLE LOCATION.

Finally, even as CTIA argues for additional Z-Axis testing of vertical location technologies, it is important to reiterate that CTIA and the nationwide wireless providers are committed to delivering DL information. As CTIA previously explained, "the nationwide wireless providers are committed to using DL as their principal method to deliver the vertical information of wireless 9-1-1 calls."[20] As Verizon affirmed, DL is the primary means "of delivering vertical location information to PSAPs regardless of the backstop Z-axis metric the Commission ultimately adopts."[21]

V. CONCLUSION.

The wireless industry remains committed to providing the public safety community with the most accurate, actionable location information with wireless 9-1-1 calls, including through the development of DL and, in the alternative, Z-Axis solutions. To advance a more accurate Z-Axis metric that can be validated and supported by results in the Test Bed, CTIA and the

[19] *See, e.g.*, Z-Axis Test Bed Report at 3 ("Consistent with ATIS's testing methodology for Z-axis, Chicago was specifically added as a third test region to explore the effects of broader and possibly more extreme weather conditions, including fluctuating indoor-outdoor temperature and pressure differences that may affect barometric-based technologies.").

[20] CTIA Comments at 2.

[21] Verizon Comments at 1.

nationwide wireless providers encourage the Commission to await the results of further Z-Axis testing before adopting a Z-Axis metric.

Respectfully submitted,

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