October 1, 2018

Via ECFS
Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Wireless E-9-1-1 Location Accuracy (PS Docket No. 07-114)

Dear Ms. Dortch:

CTIA submits this letter in response to the Public Safety and Homeland Security Bureau's Public Notice[1] seeking comment on the Vertical (Z-Axis) test bed report put forward by CTIA and the nationwide wireless providers and the accompanying accuracy metric required by Commission' rules. CTIA and the nationwide wireless providers remain committed to deliver the most accurate, actionable location information, including vertical information, to help our public safety partners respond to wireless 9-1-1 calls. Importantly, we recognize that one of the overarching goals of the Commission's *Fourth Report & Order* was to require wireless providers to deliver vertical location information of wireless 9-1-1 calls to PSAPs with "floor level" accuracy, whether that information is provided in the form of an address with associated floor, suite, and other information (dispatchable location) or in the form of horizontal and vertical distances relative to some reference point (e.g., an altitude for Z-Axis).

With regard to a Z-Axis accuracy metric, we reiterate our request for the Commission to support additional testing of Z-Axis technology solutions, and therefore refrain from adopting a metric at this time, to allow for a more accurate Z-Axis metric that is validated and supported in test results. We look forward to continuing to engage 9-1-1 stakeholders in

[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).

constructive dialogue on Z-Axis *and* the full panoply of 9-1-1 location initiatives that promise to deliver even more accurate, actionable wireless 9-1-1 location information.

At the outset, as Verizon recently summarized, "[d]ispatchable location (DL) is the Commission's preferred indoor and vertical location solution," [2] and the nationwide wireless providers are committed to using DL as their principal method to deliver the vertical location information of wireless 9-1-1 calls to Public Safety Answering Points (PSAPs). In support of DL, CTIA and nationwide wireless providers launched the National Emergency Address Database (NEAD), which will go live in 2019. To date, the wireless industry has spent tens of millions of dollars on the NEAD initiative, and the NEAD has already registered more than 7 million reference points (e.g., Wi-Fi access points) with MSAG validated street addresses and the requisite additional location information (e.g., floor, suite, room) for dispatchable location. To meet the FCC's 2021 benchmark, nationwide wireless providers expect to spend tens of millions of dollars more to operate the NEAD and acquire at least 30 million reference points.[3] Through the NEAD, nationwide wireless providers remain committed to delivering DL information to PSAPs.

Given the goals of delivering "floor level" accuracy information, whether that information is dispatchable location or Z-Axis, CTIA and the nationwide wireless providers understand the importance of the Commission adopting a Z-Axis metric that will be both feasible and actionable for public safety. Last month, CTIA, on behalf of the nationwide wireless providers, submitted a Z-Axis Test Bed Report that provided the results of testing on two barometric pressure sensor-based vertical location solutions.[4] The Report itself resulted from months of testing, expenditures of considerable resources, and input from public safety

[2] Letter from Robert G. Morse, Associate General Counsel, Verizon, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 1 (filed Sept. 28, 2018). The Commission has recognized that DL is the "preferabl[e]" indoor location solution and that the Z-Axis metric is a "backstop." *See* Wireless E911 Location Accuracy Requirements, *Fourth Report and Order*, 30 FCC Rcd 1259, 1271, 1319 (2015) (*Fourth Report & Order*).

[3] *See Fourth Report & Order*, 30 FCC Rcd at 1304; 47 C.F.R. § 20.18(i)(2)(ii)(C)(i).

[4] 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 (Test Bed Report).

stakeholders. Because the *Fourth Report & Order* required the nationwide wireless providers to submit a Z-Axis accuracy metric by August 3, 2018—a metric that must be "validated" by the Test Bed process and "supported" by a report on the results of the testing[5]—CTIA separately submitted a proposed Z-Axis metric. As CTIA's letter explained, the evidence submitted in the Test Bed Report only supported a Z-Axis metric of ± 5 meters for 80% of fixes and, thus, the evidence as of August 2018 did not validate that a more accurate metric could be consistently achieved across all testing regions, morphologies, weather conditions, and devices.[6]

While the Commission's rules required that the industry submit a metric for consideration based on the Test Bed results, CTIA "encourage[d] the Commission to support additional Stage Z testing" which could "yield results that validate adoption of a more accurate metric."[7] In other words, rather than adopting ±5 meters as the Z-Axis metric, we suggest that further testing is a better course to advance vertical location solutions that will help to provide "floor level" accuracy. CTIA and the nationwide wireless providers are eager to begin the next round of Z-Axis testing in 2019, and this testing will hopefully include the barometric pressure sensor-based solutions already tested as well as additional Z-Axis solutions, including 3D Wi-Fi. Thus, we suggest that it is premature for the Commission to adopt any Z-Axis metric at this time.

Finally, DL and Z-Axis are just a few of the ways wireless providers have been working to enhance 9-1-1 location information since the *Fourth Report and Order*. Earlier this month, CTIA announced that the nationwide wireless providers will integrate device-based hybrid (DBH) into their wireless 9-1-1 location technologies this year.[8] DBH solutions—similar to those used by popular commercial services like ride-sharing and navigation apps—will help PSAPs and first responders more accurately determine a wireless 9-1-1 caller's location,

---

[5] 47 C.F.R. § 20.18(i)(2)(ii)(B).

[6] *See* CTIA Z-Axis Letter at 4-5.

[7] *See id.* at 5.

[8] Press Release, CTIA, *Wireless Industry Announces Development in Improving 9-1-1 Location Accuracy* (Sept. 5, 2018) https://www.ctia.org/news/wireless-industry-announces-development-in-improving-9-1-1-location-accuracy.

particularly inside buildings. Combined with providers' assisted GPS solutions, DBH produces high-accuracy, low-latency location fixes, with nationwide coverage and the ability for PSAPs to harness DBH information with their existing capabilities.[9]

With the developments in DL, Z-Axis, and DBH, CTIA and our member companies are advancing the Commission's, public safety's and the wireless industry's goals of delivering the most accurate, actionable location information to help our public safety partners respond to wireless 9-1-1 calls.

Sincerely,

/s/ Matthew Gerst

Matthew Gerst
Assistant Vice President, Regulatory Affairs
CTIA
1400 16th Street NW, Suite 600
Washington, DC 20036

[9] *See* Sarah Krouse, *Google, T-Mobile Tackle 911 Call Problem*, WALL ST. J., Sept. 19, 2018, https://www.wsj.com/articles/google-t-mobile-tackle-911-call-problem-1537358400.