

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

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

**REPLY COMMENTS OF CTIA**

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CTIA submits these reply comments in response to the initial comments filed on the *Fifth Further Notice of Proposed Rulemaking (Fifth FNPRM)* seeking comment on whether the Federal Communications Commission (Commission or FCC) should take certain measures aimed at improving the vertical location framework.<sup>1</sup>

**I. INTRODUCTION AND SUMMARY.**

CTIA's nationwide wireless provider member companies are committed to providing the public safety community with accurate and actionable vertical location information and are striving to achieve the  $\pm 3$  meter Z-axis metric under the benchmarks adopted in the *Fifth Report and Order (Fifth R&O)*. The record demonstrates that promising new vertical location solutions are on the horizon, but achieving the FCC's metric in a scalable and consistent manner by the April 2021 benchmark remains a challenge.

The record reflects an emerging consensus that advances in device-based Z-axis solutions may enable the Commission to extend the 9-1-1 vertical location regulatory regime beyond the Top 25/Top 50 CMAs to nationwide coverage that benefits all wireless 9-1-1 callers. There remains a diversity of views about the appropriate compliance regime, however, and given the

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<sup>1</sup> *Wireless E911 Location Accuracy Requirements*, Fifth Report and Order and Fifth Further Notice of Proposed Rulemaking, PS Docket No. 07-114, 34 FCC Rcd 11592 (2019) (*Fifth R&O* and *Fifth FNPRM*, respectively).

challenges associated with the FCC's April 2021 deadline, the FCC should convene a discussion among stakeholders to determine a path forward on an updated vertical location compliance regime with realistic benchmarks.

Even as the 9-1-1 ecosystem is striving to develop accurate and scalable solutions that can meet the  $\pm 3$  meter Z-axis metric, the Commission should dismiss proposals to adopt a more stringent Z-axis metric in the near-term or require the conversion of Z-axis information into floor level. These proposals are premature, lack consensus, and risk diverting efforts from achieving compliant Z-axis solutions.

Finally, the record demonstrates that dispatchable location remains a very important objective to enhance the location information of indoor wireless 9-1-1 calls. The Commission should focus on adopting a technology-neutral and flexible approach to encourage the development of numerous solutions and approaches to deliver dispatchable location information with mobile wireless 9-1-1 calls.

## **II. THE RECORD SHOWS THAT PROMISING VERTICAL LOCATION SOLUTIONS ARE ON THE HORIZON, BUT ACHIEVING THE COMMISSION'S METRIC BY APRIL 2021 REMAINS A CHALLENGE.**

### **A. New, Promising Vertical Location Solutions Are Evolving.**

CTIA agrees with commenters that adoption of the  $\pm 3$  meter benchmark is driving coordination, discussion, and development forward.<sup>2</sup> As Verizon notes, adoption of the metric will serve to address any "perceived uncertainty, and help service providers to obtain more definitive information from equipment vendors about the status of and performance of Z-axis

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<sup>2</sup> See Comments of Verizon, PS Docket No. 07-114, at 1 (filed Feb. 21, 2020) (Verizon Comments); Comments of AT&T, PS Docket No. 07-114, at 2 (filed Feb. 21, 2020) (AT&T Comments).

solutions as the April 2021 date nears.”<sup>3</sup> The metric is an important focal point that will help drive further testing, development, and implementation.<sup>4</sup>

Many commenters observe that device-based solutions hold great promise to deliver accurate vertical location information with indoor wireless 9-1-1 calls.<sup>5</sup> For example, Google’s Android Emergency Location Service (ELS) and Apple’s Hybridized Emergency Location (HELO) have the potential to provide granular location information to public safety answering points (PSAPs) without deployment of new network infrastructure and with use of hardware with diverse capabilities (i.e., barometric pressure sensors with varying degrees of accuracy or non-barometric pressure sensor based solutions). As Google notes, handset-based solutions have “distinct advantages” over other solutions – they can be deployed “rapidly, widely,” and they are easily scalable because many handset solutions “involve determination of location on the device itself, without deployment or maintenance of new infrastructure.”<sup>6</sup> The Industry Council for Emergency Response Technologies, Inc. (iCERT) also notes that “today’s leading 911 location solutions” are “handset-based” and that “handset-based solutions might be the predominant solution for 911 location accuracy in the future.”<sup>7</sup>

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<sup>3</sup> Verizon Comments at 1.

<sup>4</sup> Comments of CTIA, PS Docket No. 07-114, at 2 (filed May 20, 2019) (CTIA Z-Axis Metric Comments).

<sup>5</sup> *See, e.g.*, Comments of Google LLC, PS Docket No. 07-114 (filed Feb. 21, 2020) (Google Comments); Comments of CTIA, PS Docket No. 07-114, at 4, 7-8 (filed Feb. 21, 2020) (CTIA Comments); Comments of T-Mobile USA, PS Docket No. 07-114, at 16-18 (filed Feb. 21, 2020) (T-Mobile Comments); AT&T Comments at 10.

<sup>6</sup> Google Comments at 8-9.

<sup>7</sup> Comments of Industry Council for Emergency Response Technologies, Inc., PS Docket No. 07-114, at 4 (filed Feb. 21, 2020) (iCERT Comments).

With a particular focus on evaluating the evolution of device-based vertical location solutions, CTIA, the nationwide wireless providers, and public safety stakeholders, APCO and NENA, are continuing to conduct testing of vertical location solutions through the 9-1-1 Location Technologies Test Bed LLC (Test Bed).<sup>8</sup> For the last 6 months, the Test Bed has been conducting another round of Z-axis testing (Stage Za) that examined Google's ELS, and earlier this year, the Test Bed announced that a further round of Z-axis testing (Stage Zb) will begin later this year, which will likely include testing of Apple's HELO technology.<sup>9</sup> CTIA expects the results of Stage Za and Zb will help demonstrate the state of device-based vertical location solutions, and the promise of these solutions to meet the FCC's Z-axis metric.

**B. Despite these Promising Solutions, Achieving the Commission's Metric in a Scalable and Consistent Manner by the April 2021 Benchmark Remains a Challenge.**

Even though a wide range of commenters are optimistic about the device-based solutions that are emerging,<sup>10</sup> it remains unclear whether any solutions will be sufficiently scalable, deployable, and ready to meet the  $\pm 3$  meter metric for 80 percent of calls as certified in the Test Bed by April 2021.<sup>11</sup> These concerns are shared among wireless providers that are working to meet the Commission's requirements.<sup>12</sup>

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<sup>8</sup> CTIA Comments at 3; *see also* Verizon Comments at 8; T-Mobile Comments at 2.

<sup>9</sup> *See* T-Mobile Comments at 15; Letter from Paul Margie, Counsel for Apple Inc., to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 4 (filed Oct. 29, 2019).

<sup>10</sup> *See* Google Comments at 1, 8-10; CTIA Comments at 4, 7-8; T-Mobile Comments at 16-18; AT&T Comments at 10; iCERT Comments at 4.

<sup>11</sup> *See* CTIA Comments at 4-5.

<sup>12</sup> *See* Verizon Comments at 1-2, 5-6; T-Mobile Comments at 4-6; AT&T Comments at 3.

In adopting the  $\pm 3$  meter benchmark, the Commission largely relied on a showing that technology from NextNav and Polaris would be capable of meeting the metric by April 2021.<sup>13</sup> The FCC found that “implementing the 3-meter metric on schedule is technically feasible” because “[t]wo vendors have consistently shown in testing that they can meet or surpass this standard.”<sup>14</sup> However, NextNav’s comments about the challenges of integrating their proprietary solution into wireless handsets suggests that it is not currently on a path that will deliver a scalable and consistent solution that will meet the April 2021 deadline.<sup>15</sup> The record also contains no information to suggest that Polaris’ proprietary solution is scalable to meet the April 2021 deadline.

Further, the record contains views by handset manufacturers that these proprietary solutions may raise privacy concerns.<sup>16</sup> Given that support of these manufacturers is critical to integrating any proprietary vertical location solutions, the record demonstrates that wireless providers may not be able to utilize the solutions that the Commission relied upon to meet the Z-axis metric by April 2021.

These marketplace realities stand in stark contrast to NextNav’s statements in favor of proprietary “Managed Infrastructure Solutions” that deploy network infrastructure for calibration, rather than “Unmanaged Infrastructure Solutions” that rely on privately-owned

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<sup>13</sup> See *Fifth R&O*, 34 FCC Rcd at 11597-98 ¶¶ 11-12.

<sup>14</sup> *Id.*

<sup>15</sup> Comments of NextNav, PS Docket No. 07-114, at 7-8 (filed Feb. 21, 2020) (NextNav Comments) (noting “a number of manufacturers of handsets and chipsets have resisted incorporating new location technology approaches into their products”).

<sup>16</sup> Comments of Apple Inc., PS Docket No. 07-114, at 2-4 (filed Feb. 21, 2020) (Apple Comments); Google Comments at 7-8; Letter from Paul Margie, Counsel for Apple Inc., to Marlene H. Dortch, FCC, PS Docket No. 07-114, at 3 (filed Oct. 29, 2019); Letter from Megan Stull, Counsel for Google, LLC, to Marlene H. Dortch, FCC, PS Docket No. 07-114, at 3 (filed Nov. 8, 2019).

unlicensed transmitters to facilitate location determination. There is no denying that NextNav’s proprietary solution faces challenges with commercial readiness and scalability.<sup>17</sup> Given these challenges, the record suggests that the Commission should revisit the existing regulatory regime to better reflect the current state of vertical location solutions.

### **III. THE RECORD SHOWS SIGNIFICANT STAKEHOLDER INTEREST IN AN UPDATED REGULATORY FRAMEWORK THAT WILL ADVANCE VERTICAL LOCATION ACCURACY IN WAYS THAT BENEFIT ALL WIRELESS 9-1-1 CALLERS.**

#### **A. Commenters Support the Commission’s Inquiry Into Whether a Revised Vertical Location Framework Would Better Account for Today’s Developing Solutions That Are Scalable Nationwide.**

As the Commission requested, the record reflects broad support for the Commission to revisit its vertical location framework. The *Fifth FNPRM* seeks comment on “establishing an option for CMRS providers to deploy z-axis capable handsets nationwide as a means of complying with our z-axis deployment requirements.”<sup>18</sup> It also asks commenters to discuss the benefits associated with handset-based Z-axis deployment and whether a handset deployment option would “facilitate more rapid and widespread availability of nationwide z-axis solutions deployment.”<sup>19</sup>

Commenters including Google, iCERT, NextNav, and NENA believe that the FCC’s vertical location framework should reflect recent developments in device-based vertical solutions and that the FCC should work with industry to develop meaningful metrics and benchmarks for

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<sup>17</sup> See NextNav Comments at 7-8; see also Letter from Scott K. Bergmann, Senior Vice President, Regulatory Affairs, CTIA *et al.*, to Marlene H. Dortch, 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, at 121-22 (Z-Axis Report).

<sup>18</sup> *Fifth FNPRM*, 34 FCC Rcd at 11623 ¶ 74.

<sup>19</sup> *Id.*



device-based vertical location solutions.<sup>20</sup> Vertical location solutions have evolved since the FCC adopted the current compliance regime premised on deployment of network-based solutions, applied in a phased-in approach to cover the Top 25 and then the Top 50 CMAs.<sup>21</sup> Today’s emerging vertical solutions are device-based and offer the promise of scaling nationwide to enable delivery of Z-axis location information for 9-1-1 calls, regardless of the size market the caller is dialing from.

CTIA and the nationwide wireless providers agree.<sup>22</sup> Such an approach could better align with the FCC’s objectives in the *Fifth FNPRM* to ensure that “[a]ll Americans using mobile phones—whether they are calling from urban or rural areas, buildings or outdoor venues—should have the capability to dial 9-1-1 and receive the support they need in times of an emergency.”<sup>23</sup>

**B. The Record Contains Numerous Proposals for a Compliance Regime Aimed at Delivering Accurate Vertical Location Solutions Nationwide.**

While the record demonstrates a consensus to update the Commission’s vertical location framework to apply nationwide, the record also contains numerous, divergent proposals to demonstrate compliance. We note here several alternatives raised in the record, and encourage the FCC to convene a discussion among stakeholders to seek consensus on an updated vertical location compliance regime that better reflects today’s technologies.

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<sup>20</sup> See Google Comments at 8-10; iCERT Comments at 3-5 (“The Commission should consider establishing an optional device-based compliance approach that would more closely align with industry efforts to implement DBH-based solutions.”); see generally NextNav Comments at 9-11; Comments of NENA: The 9-1-1 Association, PS Docket No. 07-114, at 10-11 (filed Feb. 21, 2020) (NENA Comments).

<sup>21</sup> See 47 C.F.R. § 9.10(i)(2)(ii).

<sup>22</sup> See CTIA Comments at 12; T-Mobile Comments at 16-18; Verizon Comments at 3-4; AT&T Comments at 7-9.

<sup>23</sup> *Fifth FNPRM*, 34 FCC Rcd at 11592 ¶ 1.

For example, NextNav, NENA, the International Association of Fire Chiefs (IAFC), and the International Association of Fire Fighters (IAFF) support the adoption of a nationwide framework focused on meeting 80 percent of multistory buildings nationwide.<sup>24</sup> As CTIA and other commenters have noted, a consistent, nationwide database of building structures is not available and would require significant resources to develop.<sup>25</sup> For this reason, the Commission should proceed cautiously on this front, and encourage the development of a robust record to understand how this proposal would be implemented.

Google states that providers “should be permitted to deploy z-axis capable handsets nationwide as a means of complying with the Commission’s vertical location deployment rules.”<sup>26</sup> Google has also proposed in the record that the FCC permit a floor label with  $\pm 1$  floor uncertainty based on Z-axis measurements as an alternative metric to providing  $\pm 3$  meters in the HAE format.<sup>27</sup> T-Mobile supports such a flexible approach to compliance once such solutions demonstrate in the Test Bed that they are technically achievable in real-world production deployments.<sup>28</sup>

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<sup>24</sup> NextNav Comments at 9-11; NENA Comments at 12 (“NextNav’s proposal will likely be beneficial to public safety if it avoids a patchwork of potential z-axis ‘dead spots’ such as southern Florida”); Comments of International Association of Fire Fighters, PS Docket No. 07-114, at 2-3 (filed Feb. 21, 2020) (IAFF Comments); Comments of International Association of Fire Chiefs, PS Docket No. 07-114, at 3 (filed Feb. 21, 2020).

<sup>25</sup> See, e.g., CTIA Comments at 8-9; NENA Comments at 4-5.

<sup>26</sup> Google Comments at 8.

<sup>27</sup> See Letter from Megan Stull, Counsel for Google, LLC, to Marlene H. Dortch, FCC, PS Docket No. 07-114, at 2-4 (filed Nov. 15, 2019).

<sup>28</sup> T-Mobile Comments at 15.

Verizon proposes the adoption of the following Z-axis accuracy milestones to account for the expected accuracy of commercially available and scalable Z-axis solutions as an alternative to the current Z-axis metric:

- $\pm 3$  meters / 50 percent of 9-1-1 calls conducted in the Test Bed (or  $\pm 4$  meters / 60 percent) by April 2021;
- $\pm 3$  meters / 70 percent of 9-1-1 calls conducted in the Test Bed by April 2023; and
- $\pm 3$  meters / 80 percent of 9-1-1 calls conducted in the Test Bed by April 2025.<sup>29</sup>

To measure the availability of vertical location solutions nationwide, AT&T encourages the FCC to develop handset-based deployment metrics based on the percentage of Z-axis capable handset models offered for sale, and commence in 2021, gradually increasing the required percentage over time.<sup>30</sup> To that end, Verizon also proposes the adoption of the following benchmarks for equipment manufacturers to be modified as equipment manufacturers begin real-world introduction of capable devices:

- Begin introducing Z-axis capable devices by April 2021;
- 50 percent of all new handset activations by April 2023; and
- 100 percent of all new handset activations by April 2025.<sup>31</sup>

T-Mobile also supports a nationwide handset-based framework, noting that “even the successful implementation of the Commission’s vertical location rules would cover only a percentage of the

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<sup>29</sup> Verizon Comments at 3-4.

<sup>30</sup> AT&T Comments at 8.

<sup>31</sup> Verizon Comments at 4.

U.S. population, thus leaving millions of Americans outside of the designated CMAs potentially without any vertical location information.”<sup>32</sup>

While the record seems to support migration to a benchmark with a nationwide framework that more accurately reflects the current state of vertical location solutions, the record also demonstrates the diversity of views about the appropriate compliance regime that accounts for the evolving state of vertical location solutions. Given the challenges that wireless providers face in meeting the FCC’s April 2021 deadline, the FCC should convene a discussion among stakeholders to seek consensus on an updated vertical location compliance regime that better reflects today’s technologies.

#### **IV. THE RECORD DEMONSTRATES THAT THE FCC SHOULD FOCUS ON HARNESSING NEW AND EVOLVING VERTICAL LOCATION SOLUTIONS TO BENEFIT PUBLIC SAFETY AND WIRELESS 9-1-1 CALLERS, RATHER THAN FOCUSING ON OTHER PROPOSALS.**

Even as the 9-1-1 ecosystem is striving to develop accurate and scalable solutions that can meet the  $\pm 3$  meter Z-axis metric, the record contain numerous proposals that the Commission should dismiss at this time in order to ensure stakeholders remain focused on achieving  $\pm 3$  meter Z-axis metric solutions.<sup>33</sup>

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<sup>32</sup> T-Mobile Comments at 16.

<sup>33</sup> A handful of proposals focus on new benchmarks for horizontal location accuracy and thus fall outside the scope of this targeted rulemaking proceeding. *See, e.g.*, NENA Comments at 6-7 (“floor-level estimations – would benefit greatly from increased accuracy in the horizontal plane”); NextNav Comments at 23 (“the preexisting requirement for 50 meter horizontal accuracy cannot guarantee that the information provided will always identify the correct building, in which case floor level information for one building may produce inaccurate results for adjacent structures”).

**A. It Is Premature to Impose a More Stringent Z-Axis Metric.**

Many commenters agree with CTIA that it is premature to adopt a more stringent Z-axis metric.<sup>34</sup> Instead, the FCC should allow the ecosystem to focus resources on achieving the  $\pm 3$  meter metric on a scalable, consistent basis before moving the target and adopting another metric. As iCERT states, “[t]he establishment of a more stringent requirement, without the benefit of technical data to support it, would be arbitrary both in terms of the level of accuracy achievable and the timeframe in which it could be achieved.”<sup>35</sup>

Some commenters, such as IAFC, NextNav, and Polaris state that accuracy within 2 meters has already been demonstrated.<sup>36</sup> However, as the FCC is well aware, artificial steps and accommodations had to be taken to produce the location estimates in the initial Stage Z test campaign.<sup>37</sup> Calibration and integration into the device are critical steps, and the record shows that those solutions are not yet commercially ready or scalable.<sup>38</sup>

IAFF states that the “most likely compliance path to 2 meter accuracy is using the same location technologies that the carriers will use to achieve compliance with the 3 meter metric” and that “well before the compliance deadline for a 2 meter metric, the carriers will already have the technologies in place and in operation.”<sup>39</sup> This may prove to be true in the long-term, but the record lacks support for this proposal in the near-term (i.e., 2021/2023 timeframe). As discussed above, technologies are nascent and evolving and the entire ecosystem could be different within

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<sup>34</sup> iCERT Comments at 2-3; T-Mobile Comments at 4-5; Verizon Comments at 6; AT&T Comments at 4.

<sup>35</sup> iCERT Comments at 2-3.

<sup>36</sup> IAFC Comments at 2-3; NextNav Comments at 2-3; Comments of Polaris Wireless, Inc., PS Docket No. 07-114, at 2-3 (filed Feb. 21, 2020) (Polaris Comments).

<sup>37</sup> See CTIA Comments at 5 (citing Z-Axis Report at 121).

<sup>38</sup> *Id.* at 4-6; T-Mobile Comments at 5-8; AT&T Comments at 2-3.

<sup>39</sup> IAFF Comments at 2.

the next few years. Thus, the FCC should carefully examine the results of the planned testing before beginning to consider a more stringent metric.<sup>40</sup> For the same reasons, it is also premature to consider adoption of a  $\pm 1$  meter metric.<sup>41</sup>

**B. It Is Not Feasible to Require the Conversion of Z-Axis Information to Floor Level Information.**

There is no evidence in the record that Z-axis information can be converted to floor-level information in a consistent, reliable and accurate manner. And commenters, including the public safety community, have offered an array of different opinions on the usefulness of a floor-level identifier.

Commenters including Polaris, NextNav, RapidDeploy, AT&T, and T-Mobile are uncertain of the value that the conversion of Z-axis information to floor-level information may produce.<sup>42</sup> Polaris, for example, states that providing floor-level information is useful when available, but is not a replacement for Z-axis information.<sup>43</sup> NextNav notes that it would be premature for the FCC to impose floor-level reporting requirements, even if the effective date of these rules was delayed by years.<sup>44</sup> RapidDeploy believes that the delivery of floor level information is useful but states that Z-axis information is the most valuable, because it gives

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<sup>40</sup> See T-Mobile Comments at 8 (stating that until Stage Zb is complete, “the Commission should refrain from adopting any additional requirements that would impose an even less feasible metric”).

<sup>41</sup> Other commenters agree that it is premature to consider adoption of a  $\pm 1$  meter metric. See, e.g., iCERT Comments at 2-3; T-Mobile Comments at 4; AT&T Comments at 4.

<sup>42</sup> Polaris Comments at 2-3; NextNav Comments at 22-24; Comments of RapidDeploy, PS Docket No. 07-114, at 1 (filed Feb. 20, 2020); T-Mobile Comments at 8-10; AT&T Comments at 4-6.

<sup>43</sup> Polaris Comments at 3.

<sup>44</sup> NextNav Comments at 22 (“It has been well documented in this proceeding that substantial challenges exist with generating and providing actual floor level information . . . [t]herefore, it would be premature for the Commission to impose floor-level reporting requirements, even if the effective date of these rules was delayed by a significant number of years.”)

PSAPs the ability to conduct floor level estimations using their own authoritative geospatial base data.<sup>45</sup> It states the FCC should not permit the conveyance of floor level information alone.<sup>46</sup> AT&T notes that delivery of floor level information is not practical at this time or currently feasible.<sup>47</sup> Other commenters including NENA believe that the conversion of Z-axis data to a floor level is feasible but that it would be laborious and would take significant amounts of time before reliable.<sup>48</sup> Moreover, NENA does not believe that floor level estimates should be delivered in lieu of Z-axis information.<sup>49</sup> For these reasons, the Commission should refrain from adopting any requirements that providers convert Z-axis information into floor level information.

Some commenters say that vertical information in the height above ellipsoid (HAE) format is unusable without correlation to floor numbers.<sup>50</sup> However, as the FCC concluded in the *Fifth R&O*, “HAE has emerged as the globally recognized standard for generating z-axis measurements.”<sup>51</sup> Further, the record does not contain sufficient evidence that scalable technology solutions are available to support the consistent and accurate conversion of Z-axis to floor level information.<sup>52</sup> To the extent that any solutions are available, the Commission should

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<sup>45</sup> RapidDeploy Comments at 1-2.

<sup>46</sup> *Id.*

<sup>47</sup> AT&T Comments at 4-5.

<sup>48</sup> NENA Comments at 4-5.

<sup>49</sup> *Id.* at 5-6.

<sup>50</sup> See Comments of Boulder Emergency Telephone Service Authority, PS Docket No. 07-114, at 1-2 (filed Feb. 21, 2020) (BRETSA Comments); see also Google Comments at 1-3.

<sup>51</sup> *Fifth R&O*, 34 FCC Rcd at 11608, ¶¶ 32-33.

<sup>52</sup> See, e.g., Google Comments at 2 (“Absent further innovation, first responders and carriers can obtain floor level only by converting HAE data into an approximate floor, typically using height above ground level (AGL) as a proxy. Yet to our knowledge, there is today no service that consistently converts AGL from HAE using a public terrain database. First responders must undertake conversion gymnastics that introduce additional uncertainties and make callers harder to find in an emergency.”).

encourage vendors of potential solutions to participate in the Test Bed to demonstrate the accuracy of such solutions to providers and public safety stakeholders.<sup>53</sup>

**C. Many Commenters Agree That the FCC’s Proceeding Is Not the Appropriate Forum for Addressing Power Loss.**

Commenters including NENA, the Alliance for Telecommunications Industry Solutions (ATIS), T-Mobile, and AT&T agree with CTIA that testing Z-axis technology in scenarios involving the loss of power is not practical.<sup>54</sup> As commenters note, getting access to buildings for testing is already challenging and testing a power loss scenario would be exceedingly difficult, disruptive, and costly.<sup>55</sup> As CTIA and others stated in their initial comments, this issue would be better addressed by the public safety community in a separate forum if they can work through the issues identified above.<sup>56</sup>

**D. The FCC Should Reject Arguments to Require Performance Testing as well as Other Criticisms to the Test Bed.**

In its comments, Boulder Emergency Telephone Service Authority (BRETSA) proposes that the FCC require proof-of-performance testing in each of the top 50 markets in order to benchmark barometric pressure sensor-based Z-axis information.<sup>57</sup> The FCC should refrain from adopting such testing and should also dismiss other criticisms of the Test Bed. In the *Fifth R&O*,

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<sup>53</sup> In any event, the *Fifth R&O* directs that floor-level information should be provided when it is deemed to be “reliable information.” *Fifth R&O*, 34 FCC Rcd at 11610-11 ¶ 37.

<sup>54</sup> Comments of The Alliance for Telecommunications Industry Solutions, PS Docket No. 07-114, at 2-3 (filed Feb. 21, 2020) (ATIS Comments); NENA Comments at 9-10 (noting that the testing process is already “difficult for a variety of reasons, including building managers who come to see testing as a nuisance and withdraw access between test stages, or in some cases, markets where there is not a wide selection of friendly building managers for a given morphology in a particular market”); T-Mobile Comments at 12-14; AT&T Comments at 7.

<sup>55</sup> ATIS Comments at 2.

<sup>56</sup> T-Mobile Comments at 13.

<sup>57</sup> BRETSA Comments at 2.



the FCC declined to require live call proof-of-performance testing, noting that in establishing the test bed approach, the FCC found it to be “the most practical and cost-effective method for testing compliance with indoor location accuracy requirements.”<sup>58</sup> BRETSA’s claims do not undermine these previous findings. As the FCC stated, the “purpose of the test bed program is to provide a reliable mechanism for validating the performance of indoor location technologies without the need for the provider to conduct indoor testing in all locations where the technology is actually deployed, which would be impractical and highly burdensome.”<sup>59</sup> The FCC should reiterate the same here.

With regard to other testing issues raised in the record,<sup>60</sup> the Test Bed is dedicated to independently evaluating the performance of new and existing wireless 9-1-1 location information technologies. The Test Bed merely implements the testing methodologies developed within ATIS’ Emergency Services Interconnection Forum (ESIF), a multi-stakeholder standards body comprised of providers, vendors and public safety representatives. Any feedback to improve the testing methodologies or to ensure that the testing is appropriate for any given technology should be directed towards ATIS’ ESIF.

## **V. THE RECORD SUPPORTS A TECHNOLOGY-NEUTRAL AND FLEXIBLE APPROACH TO DISPATCHABLE LOCATION.**

Commenters agree that dispatchable location remains a very important objective.<sup>61</sup> As T-Mobile states, “[r]egardless of the source, reliable dispatchable location information, if

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<sup>58</sup> *Fifth R&O*, 34 FCC Rcd at 11613 ¶ 45.

<sup>59</sup> *Id.*

<sup>60</sup> *See, e.g.*, Google Comments at 5.

<sup>61</sup> iCERT Comments at 4-5; Comments of Association of Public-Safety Communications Officials-International, Inc., PS Docket No. 07-114, at 5-6 (filed Feb. 21, 2020) (APCO Comments); T-Mobile Comments at 18; Verizon Comments at 6; AT&T Comments at 10.

available, should continue to be embraced as an alternative to geodetic location estimates for compliance purposes and can be an important option for first responders.”<sup>62</sup>

CTIA and the nationwide wireless providers remain committed to pursuing solutions that offer dispatchable location information and believe that the FCC should adopt a flexible and technology-neutral approach.<sup>63</sup> Other commenters agree. As iCERT states, “prescriptive rules . . . may prejudice the outcomes of technological innovation and argues in favor of flexible rules that encourage the development and implementation of a wide variety of potential solutions.”<sup>64</sup> As T-Mobile notes, “ensuring technological neutrality” for dispatchable location “is the only practical path forward to providing the best possible location information to PSAPs and first responders.”<sup>65</sup>

The FCC should reject proposals that would deviate from last year’s *Report and Order* implementing Kari’s Law and Section 506 of RAY BAUM’S Act to pursue technology neutral dispatchable location policy for non CMRS-providers and it should refrain from proposals that do not advance dispatchable location.<sup>66</sup> For example, APCO requests that the FCC stop treating dispatchable location and coordinate-based technologies as mutually-exclusive approaches.<sup>67</sup> APCO also suggests that dispatchable location be provided for a percentage of calls over time.<sup>68</sup> As a variety of solutions may develop to deliver dispatchable location information, the FCC

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<sup>62</sup> T-Mobile Comments at 18.

<sup>63</sup> Verizon Comments at 6-8; AT&T Comments at 10.

<sup>64</sup> iCERT Comments at 3.

<sup>65</sup> T-Mobile Comments at 18.

<sup>66</sup> *Implementing Kari’s Law and Section 506 of RAY BAUM’S Act Inquiry Concerning 911 Access, Routing, and Location in Enterprise Communications Systems Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission’s Rules*, Report and Order, 34 FCC Rcd 6607 (2019).

<sup>67</sup> APCO Comments at 7.

<sup>68</sup> *Id.* at 6.

should maintain its focus on adopting a technology-neutral and flexible approach to dispatchable location.

## **VI. CONCLUSION.**

The record shows that a broad range of stakeholders across the 9-1-1 ecosystem remain committed to ensuring the delivery of accurate, actionable vertical location information to help public safety respond to wireless 9-1-1 calls. And vertical location solutions are evolving through promising handset-based solutions to meet the Commission's Z-axis metric on the horizon. For this reason, commenters agree that the Commission should consider updating its regulatory framework to advance vertical location accuracy in ways that benefit all wireless 9-1-1 callers, regardless of location, and better reflect the use of handset-based solutions. Finally, the record shows support for a technology-neutral and flexible approach to dispatchable location. CTIA looks forward to continuing its discussion with the Commission and other stakeholders to advance the availability of accurate vertical location solutions that can help public safety respond to wireless 9-1-1 calls.

Respectfully submitted,

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