

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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

ORDER ON RECONSIDERATION

Adopted: January 11, 2021

Released: January 11, 2021

By the Commission: Commissioner Rosenworcel concurring.

I. INTRODUCTION

1. In this *Order on Reconsideration*, we reject two petitions for reconsideration of the *Sixth Report and Order* in this proceeding.¹ The *Sixth Report and Order* adopted rules designed to increase the speed and precision with which first responders will be able to locate indoor wireless Enhanced 911 (E911) callers in multi-story buildings. The Petition for Reconsideration filed by CTIA on September 28, 2020 asks the Commission to reconsider the rules and timelines for implementing a three-meter vertical location accuracy metric for these calls.² The Petition for Reconsideration filed by the Association of Public-Safety Communications Officials-International, Inc. (APCO) on September 23, 2020 seeks reconsideration of certain revisions of the dispatchable location requirements in the *Sixth Report and Order*.³ For the reasons discussed below, we dismiss the petitions as procedurally defective and, as an alternative and independent ground for resolving the issues raised, we deny the petitions on the merits.

II. BACKGROUND

2. *Z-Axis Regulations*. In the 2015 *Fourth Report and Order* in this proceeding, the Commission established comprehensive rules and deadlines for improving E911 wireless location accuracy.⁴ These rules require Commercial Mobile Radio Service (CMRS) providers transmitting 911 calls to Public Safety Answering Points (PSAPs) to help identify a wireless 911 caller's location,

¹ *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Sixth Report and Order and Order on Reconsideration, 35 FCC Rcd 7752 (2020) (*Sixth Report and Order*), corrected by Erratum (PSHSB Aug. 28, 2020) and Second Erratum (PSHSB Oct. 29, 2020).

² CTIA Petition for Reconsideration, PS Docket No. 07-114 (filed Sept. 28, 2020), <https://ecfsapi.fcc.gov/file/1092835868478/200928%20CTIA%20Petition%20for%20Reconsideration%20of%20FC%20Sixth%20RO%20on%20911%20Location%20Accuracy.pdf> (CTIA Petition).

³ Petition for Reconsideration of APCO International, PS Docket No. 07-114 (filed Sept. 23, 2020), <https://ecfsapi.fcc.gov/file/109232735502601/APCO%20Petition%20for%20Reconsideration%20-%20July%202020%20911%20Location%20Order.pdf> (APCO Petition).

⁴ *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Fourth Report and Order, 30 FCC Rcd 1259 (2015) (*Fourth Report and Order*), corrected by Erratum (PSHSB Mar. 3, 2015); see also 47 CFR § 9.10(i). The Third Further Notice, Fourth Report and Order, Fifth Report and Order, and Sixth Report and Order include a detailed history of this proceeding, including an overview of the regulatory background on dispatchable location and establishing a z-axis metric. *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 2374, 2377-84, paras. 7-22 (2014), corrected by Erratum (PSHSB Mar. 18, 2014); *Fourth Report and Order*, 30 FCC Rcd at 1263-64, paras. 9-13; *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Fifth Report and Order and Fifth Further Notice of Proposed Rulemaking, 34 FCC Rcd 11592, 11593-95, paras. 3-8 (2019) (*Fifth Report and Order*), corrected by Erratum (PSHSB Jan. 15, 2020); *Sixth Report and Order*, 35 FCC Rcd at 7753-56, paras. 5-10.

including the caller's vertical location within a multi-story building, by conveying either dispatchable location (e.g., street address, floor level, and office or apartment number) or coordinate-based location information in connection with the call.⁵ In the case of vertical (z-axis) coordinate-based information, the Commission required providers to deploy z-axis technology that meets a Commission-approved metric in the top 25 Cellular Market Areas (CMAs) by April 3, 2021, and in the top 50 CMAs by April 3, 2023.⁶ The Commission, however, did not identify any specific approved z-axis metric at that time, and instead deferred adoption of such a metric pending further testing.⁷

3. As required by the *Fourth Report and Order*, the nationwide CMRS providers established an independently administered and transparent test bed process (the Test Bed) for testing of location technologies to be used in meeting the Commission's location accuracy requirements.⁸ In 2017 to 2018, the Test Bed conducted vertical location testing (Stage Z) of z-axis solutions being developed by two technology vendors, NextNav, LLC (NextNav) and Polaris Wireless, Inc. (Polaris). In addition, the nationwide CMRS providers began development of the National Emergency Address Database (NEAD), which was intended to support the provision of dispatchable location for wireless 911 calls.

4. In the November 2019 *Fifth Report and Order*, the Commission adopted a z-axis location accuracy metric of 3 meters above or below the handset (plus or minus 3 meters) for 80% of wireless E911 calls made from z-axis capable devices.⁹ The Commission found that NextNav and Polaris had consistently shown in testing that their solutions, which rely on barometric pressure sensors in handsets, could meet or surpass this standard.¹⁰ The Commission also found that devices capable of measuring and reporting vertical location without a hardware upgrade (z-axis capable devices) were widely available.¹¹ The Commission concluded that implementing the 3-meter metric within the existing compliance timeline was technically feasible and would yield significant public safety benefits.¹² Thus, the Commission required nationwide CMRS providers electing the z-axis option to deploy z-axis technology meeting the

⁵ See *Fourth Report and Order*, 30 FCC Rcd at 1261-62, 1273-74, paras. 6, 43-44; see also 47 CFR § 9.10(i)(2)(i)-(ii). "Dispatchable location" is "[a] location delivered to the PSAP by the CMRS provider with a 911 call that consists of the street address of the calling party, plus additional information such as suite, apartment or similar information necessary to adequately identify the location of the calling party. The street address of the calling party must be validated and, to the extent possible, corroborated against other location information prior to delivery of dispatchable location information by the CMRS provider to the PSAP." 47 CFR § 9.10(i)(1)(i).

⁶ *Fourth Report and Order*, 30 FCC Rcd at 1304, para. 117; see also 47 CFR § 9.10(i)(2)(ii)(C)-(D). Non-nationwide CMRS providers serving these CMAs have an additional year to meet these requirements. *Fourth Report and Order*, 30 FCC Rcd at 1304, para. 117; see also 47 CFR § 9.10(i)(2)(ii)(F).

⁷ *Fourth Report and Order*, 30 FCC Rcd at 1302-03, para. 113.

⁸ *Fourth Report and Order*, 30 FCC Rcd at 1261, 1307, paras. 6, 126-27. CTIA established the 9-1-1 Location Technologies Test Bed, LLC for this purpose. Letter from Matthew Gerst, Director, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, Federal Communications Commission (FCC), PS Docket No. 07-114, at 1 (filed Dec. 22, 2015).

⁹ *Fifth Report and Order*, 34 FCC Rcd at 11593, 11604-605, paras. 2, 24-25. The Commission also required CMRS providers to deliver z-axis information in Height Above Ellipsoid (HAE) and to provide floor level information in addition to z-axis location information where it is available. See 47 CFR § 9.10(i)(2)(ii)(H).

¹⁰ *Fifth Report and Order*, 34 FCC Rcd at 11597-98, paras. 11-12. The Commission noted that since 2012, NextNav has repeatedly achieved 3-meter accuracy in multiple independently conducted tests and that in Stage Z of the Test Bed, NextNav's technology was accurate within 1.8 meters or better for 80% of indoor fixes and 3 meters or better for 94% of indoor fixes. "In other words, NextNav's technology is capable of 'consistent performance within an accuracy metric of 3 meters or less.'" *Id.* at 11597, para. 11. The Commission also noted that "Polaris too can achieve accuracy within 2.8 meters for 80% of test calls by using additional available location data to recalibrate and refine its Stage Z data." *Id.* at 11598, para. 12.

¹¹ *Fifth Report and Order*, 34 FCC Rcd at 11605, para. 26.

¹² *Fifth Report and Order*, 34 FCC Rcd at 11596, para. 9.

3-meter accuracy standard in the top 25 CMAs by April 3, 2021 and in the top 50 CMAs by April 3, 2023.¹³

5. Shortly after release of the *Fifth Report and Order*, the nationwide CMRS providers announced that they had ceased work on the NEAD due to the “challenges” it faced and that it would not be available to support dispatchable location.¹⁴ The NEAD experienced challenges with testing, including insufficient participation, even with public safety oversight.¹⁵ In late 2019 and early 2020, the Test Bed conducted an additional round of z-axis testing (Stage Za), in which Google LLC (Google) participated.

6. In the July 2020 *Sixth Report and Order*, the Commission expanded the options for CMRS providers choosing to deploy z-axis technology to meet the 2021 and 2023 deadlines.¹⁶ The Commission provided that instead of deploying z-axis technology to cover 80% of the CMA population, CMRS providers may meet the deadlines by deploying z-axis technology to cover 80% of the buildings that exceed three stories in the CMA.¹⁷ The Commission also provided an option for CMRS providers to deploy z-axis technology on a nationwide basis or throughout the provider’s network footprint, as applicable.¹⁸ In addition, the Commission adopted a requirement for CMRS providers by January 6, 2022 to provide dispatchable location with wireless E911 calls if it is technically feasible and cost effective for them to do so,¹⁹ as well as a requirement for providers by April 2025 to deploy z-axis location technology or dispatchable location to all CMAs nationwide.²⁰

7. In the *Sixth Report and Order*, the Commission also rejected proposals by T-Mobile, Verizon, and AT&T to weaken the previously adopted 3-meter/80% vertical location accuracy standard or to extend the previously established deadlines for implementing it.²¹ These CMRS providers advocated an alternative approach that would allow them to deploy mobile operating system-based (OS-based) z-axis solutions offered by Google and Apple Inc. (Apple),²² even though these solutions had not been shown to meet the 3-meter/80% standard. Under the carriers’ proposal, they would be allowed to meet the April 2021 deadline by deploying z-axis technology that provides 3-meter accuracy for 50% of calls rather than 80% of calls. The carriers proposed to increase the call threshold to 70% of calls by April

¹³ *Fifth Report and Order*, 34 FCC Rcd at 11596, para. 9.

¹⁴ See Letter from Thomas C. Power, Secretary, and Thomas K. Sawanobori, Vice President, NEAD, LLC, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 1 (filed Feb. 14, 2020) (NEAD Feb. 14, 2020 Letter) (informing the Commission that the NEAD Platform had ceased operation and was “no longer available to support wireless providers’ provision of dispatchable location information”).

¹⁵ Letter from Matthew Gerst, Vice President, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, Attach. at 3 (filed Apr. 26, 2019) (stating in the April 2019 *E911 Location Test Bed Dispatchable Location Summary Report* prepared by ATIS Test Bed Program Management, “Only five Google Android (Android) mobile device models were tested, as only these devices so far support the necessary reporting and signaling needed to enable Dispatchable Location. Apple iOS (iOS) devices do not support the necessary functionality, and thus could not be used in this testing. . . . [T]est buildings were intentionally chosen with at least some, even if limited, NEAD database coverage. Consequently, results of this campaign tend to skew towards an optimistic assessment of database completeness.”).

¹⁶ *Sixth Report and Order*, 35 FCC Rcd at 7758-61, paras. 15-20.

¹⁷ See 47 CFR § 9.10(i)(2)(ii)(I)(1).

¹⁸ See 47 CFR § 9.10(i)(2)(ii)(I)(2).

¹⁹ *Sixth Report and Order*, 35 FCC Rcd at 7775-76, paras. 51-53; see also 47 CFR § 9.10(i)(2)(ii)(G).

²⁰ *Sixth Report and Order*, 35 FCC Rcd at 7761-63, paras. 21-25; see also 47 CFR § 9.10(i)(2)(ii)(E)-(F) (stating that nationwide CMRS providers must meet the benchmark by April 3, 2025, while non-nationwide CMRS providers will have an additional year to meet the benchmark throughout their network footprint).

²¹ *Sixth Report and Order*, 35 FCC Rcd at 7763-68, paras. 26-33.

²² *Sixth Report and Order*, 35 FCC Rcd at 7762-64, paras. 23, 26 & nn.72 & 75.

2023 and to reach 80% of calls—the threshold adopted by the Commission—by April 2025, four years after the April 2021 deadline established in our rules. The carriers argued that this approach would nonetheless benefit public safety because deployment would occur on a nationwide basis at each deadline.²³

8. The Commission rejected the carriers’ proposal as an untimely petition for reconsideration because the providers had made the same arguments prior to the *Fifth Report and Order* and had failed to seek reconsideration of that order rejecting those arguments.²⁴ The Commission also rejected the carriers’ proposal on the merits, finding that technology that only provides accurate results 50% of the time would not be useful to public safety regardless of how widely it is deployed and that the carriers’ proposal would result in an unwarranted four-year delay in deploying technology meeting the Commission’s requirements.²⁵ Finally, the Commission granted a Petition for Emergency Declaratory Ruling filed by Polaris and confirmed that the April 2021 and April 2023 deadlines established in the *Fifth Report and Order* were not changing.²⁶

9. Following release of the *Sixth Report and Order*, CTIA informed the Commission that the next round of testing of z-axis location technologies (Stage Zb), originally scheduled to start in September 2020, was being postponed due to the impact of COVID-19 and that testing would not resume until it “can be safely and effectively accomplished within buildings in the test cities.”²⁷

10. *Dispatchable Location Regulations.* In the *Fourth Report and Order*, the Commission adopted a dispatchable location benchmark for nationwide CMRS providers to use to satisfy the 2021 and 2023 vertical location accuracy requirements as an alternative to using z-axis coordinate data.²⁸ In each CMA where a nationwide CMRS provider chose dispatchable location as the means of satisfying vertical accuracy requirements, the Commission required the provider to “ensure that the NEAD is populated with a sufficient number of total dispatchable location reference points to equal 25 percent of the CMA population.”²⁹ Thus, the dispatchable location benchmark was tied to development of the NEAD and populating it with a specified number of reference points that would support the provision of dispatchable location in the CMA.³⁰

²³ *Sixth Report and Order*, 35 FCC Rcd at 7762-63, para. 26 & n.72.

²⁴ *Sixth Report and Order*, 35 FCC Rcd at 7764, para. 27. BRETSA filed a Petition for Reconsideration, but it concerned different decisions adopted in the *Fifth Report and Order* that are not at issue here. *See Sixth Report and Order*, 35 FCC Rcd at 7786-89, paras. 76-82.

²⁵ *Sixth Report and Order*, 35 FCC Rcd at 7766-68, paras. 31-32.

²⁶ *Sixth Report and Order*, 35 FCC Rcd at 7757, para. 14; *see also* Petition for Emergency Declaratory Ruling by Polaris Wireless, Inc., PS Docket No. 07-114 (filed May 27, 2020), https://ecfsapi.fcc.gov/file/105272862527596/Polaris%20Wireless%20Petition_5.27.2020.pdf.

²⁷ Letter from Scott K. Bergmann, Senior Vice President, Regulatory Affairs, and Thomas K. Sawanobori, Senior Vice President & Chief Technology Officer, CTIA, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 1, 3 (filed Aug. 21, 2020); *see also* Letter from Paul Margie, Counsel for Apple Inc., to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 2 (filed Nov. 3, 2020) (stating that due to the pandemic, the z-axis location capabilities of Apple’s Hybridized Emergency Location (HELO) vertical location solution “may not be suitable for external testing prior to the end of Q1 2021”).

²⁸ *Fourth Report and Order*, 30 FCC Rcd at 1261-62, para. 6. Non-nationwide CMRS providers have an additional year to comply with these vertical location accuracy deadlines. *Id.*

²⁹ *Fourth Report and Order*, 30 FCC Rcd at 1261-62, 1361, para. 6, Appx. D; *see also* 47 CFR § 20.18(i)(2)(ii)(C)(1) (2015).

³⁰ The NEAD was intended to serve as a national database for provision of dispatchable location information from in-building beacons and hotspots (e.g., Wi-Fi access points, Bluetooth devices, distributed in-building antennas, etc.) that the nationwide CMRS providers committed to establishing. *Fourth Report and Order*, 30 FCC Rcd at 1268,

(continued....)

11. In the *Fifth Further Notice*, the Commission recognized that the NEAD was experiencing challenges and that CMRS providers might not be able to populate it with a sufficient number of reference points to meet the 25% threshold. The Commission therefore proposed to allow CMRS providers to use *any* database, not just the NEAD database, to meet the 25% threshold, provided that the database met the same privacy and security standards that applied to the NEAD.³¹ Shortly after the comment cycle closed on the *Fifth Further Notice*, CTIA formally terminated the NEAD.³²

12. In the *Sixth Report and Order*, the Commission adopted its *Fifth Further Notice* proposal and revised the rules to allow CMRS providers to deploy dispatchable location solutions that do not rely on the NEAD.³³ Accordingly, the Commission deleted the reference to the NEAD in the rules but retained the metric for measuring a CMRS provider's deployment of dispatchable location based on database reference points.³⁴ Thus, for any CMRS provider that relies on dispatchable location to meet the April 2021 or 2023 deadlines in a CMA, the Commission stated that it would "continue to require the provider to provision a total number of dispatchable location reference points (e.g., WiFi access points or Bluetooth beacons) equal to 25% of the CMA population."³⁵ The Commission further stated that "[r]eference point data may be stored in any database so long as the database meets the privacy and security requirements adopted in the *Fifth Report and Order*."³⁶

13. In the *Sixth Report and Order*, the Commission also noted that there was "broad support for treating dispatchable location as the preferred indoor location solution as it becomes technically feasible."³⁷ Accordingly, in addition to requiring nationwide CMRS providers to deploy vertical location solutions (either dispatchable location or z-axis data) by the 2021, 2023, and 2025 deadlines, the Commission adopted a requirement that by January 2022, CMRS providers must provide dispatchable location with individual 911 calls if it is technically feasible and cost effective to do so.³⁸ This rule

para. 24 (the NEAD participants "will establish a national location database for provision of dispatchable location information from in-building beacons and hotspots (e.g., Wi-Fi and Bluetooth)"); *id.* at 1279, para. 55 ("As envisioned in the Roadmap, the NEAD will contain media access control (MAC) address information of fixed indoor access points, which a device would 'see' upon initiating a wireless 911 call."). The registered reference points in the NEAD would be used to associate 911 calls with a localized address. When a device "sees" the MAC address of a registered in-building access point, the CMRS network would cross-reference that MAC address with a dispatchable address, which would be made available to the PSAP. *Id.* at 1279, para. 55. Under the 25% density requirement, if a CMA had a population of 100,000, the NEAD would have to include at least 25,000 reference points in that CMA. *See id.* at 1284, para. 66.

³¹ *Fifth Further Notice*, 34 FCC Rcd at 11625-26, 11632-33, paras. 79-82, Appx. B (proposing to revise 47 CFR § 9.10(i)(2)(ii)(C)(I), formerly 47 CFR § 20.18(i)(2)(ii)(C)(I)).

³² *See* NEAD Feb. 14, 2020 Letter at 1.

³³ *Sixth Report and Order*, 35 FCC Rcd at 7773, para. 49.

³⁴ *Sixth Report and Order*, 35 FCC Rcd at 7773, para. 49 & n.136.

³⁵ *Sixth Report and Order*, 35 FCC Rcd at 7773, para. 49 n.136; *see* 47 CFR § 9.10(i)(2)(ii)(L). *See also Fourth Report and Order*, 30 FCC Rcd at 1284, para. 66 ("In evaluating dispatchable location, the Addendum also proposes that compliance with vertical accuracy requirements would be satisfied in a CMA where the total number of 'dispatchable location reference points' in that CMA meets or exceeds the population of the CMA divided by a concentration factor of 4 within six years, based on 2010 census data. The Addendum commits parties to populate the NEAD with [Media Access Control] address or Bluetooth reference points for dispatchable location reference points under their direct control for all CMAs. We agree with this approach . . ."). Reference point addresses would be developed using address information in various devices within range of a cell phone (Wi-Fi access points, Bluetooth devices, distributed in-building antennas, etc.) associating the call with a localized address. *See generally Sixth Report and Order*, 35 FCC Rcd at 7773, para. 49 & n.136.

³⁶ *Sixth Report and Order*, 35 FCC Rcd at 7773, para. 49 n.136.

³⁷ *Sixth Report and Order*, 35 FCC Rcd at 7774, para. 50.

³⁸ *Sixth Report and Order*, 35 FCC Rcd at 7775-76, para. 52.

mirrors an identical preference for dispatchable location the Commission adopted for wireline, Voice over Internet Protocol (VoIP), and other service providers in the *Kari's Law/RAY BAUM'S Act Report and Order*.³⁹

14. *Petitions for Reconsideration.* CTIA and APCO filed their petitions on September 28 and September 23, 2020, respectively. In its petition, CTIA argues that the COVID-19 pandemic has stalled any ability to validate whether z-axis location solutions can meet the Commission's vertical location accuracy requirements.⁴⁰ CTIA also asserts that the compliance timeline adopted by the Commission was premised on vendor promises that "have not panned out" and that time is running out for meeting the April 2021 deadline.⁴¹ According to CTIA, reconsideration of the *Sixth Report and Order* would provide an opportunity for the Commission to adopt a framework based on the use of mobile OS-based solutions.⁴² CTIA asserts that this would provide a "viable path" to achieving "accurate 9-1-1 vertical location information nationwide."⁴³ In its reconsideration petition, APCO asks us to require CMRS providers to deliver dispatchable location for a minimum percentage of 911 calls—an alternative that APCO had previously proposed and the Commission rejected—rather than tie our dispatchable location benchmark to the number of address reference points in a location database.⁴⁴ In addition, APCO asks for reconsideration of the requirement that CMRS providers must supply dispatchable location if it is technically feasible and cost effective to do so. APCO takes issue with the Commission's prior decision not to adopt its proposal to require dispatchable location for a minimum percentage of calls, and disputes the conclusion that a minimum percentage threshold would go beyond what is technically feasible and cost effective.⁴⁵

15. The Commission released a Public Notice announcing the filing of the petitions and establishing deadlines for oppositions and replies to oppositions.⁴⁶

³⁹ *Sixth Report and Order*, 35 FCC Rcd at 7775-76, paras. 51-52 & n.149.

⁴⁰ CTIA Petition at 3-7.

⁴¹ CTIA Petition at 7-12.

⁴² CTIA Petition at 12-15.

⁴³ CTIA Petition at 12.

⁴⁴ APCO Petition at 3 ("Rather than basing compliance on the number of reference points in a database, the better approach would be to establish a specific minimum percentage of calls that must be delivered with a dispatchable location.").

⁴⁵ APCO Petition at 3-4.

⁴⁶ *Public Safety and Homeland Security Bureau Announces Filing Deadlines for Oppositions, and Replies thereto, to the Petitions for Reconsideration of the Sixth Report and Order in the Wireless E911 Location Accuracy Proceeding*, PS Docket No. 07-114, Public Notice, 35 FCC Rcd 11709 (PSHSB 2020). The National Public Safety Telecommunications Council (NPSTC); the National Association of State EMS Officials (NASEMSO); the International Association of Fire Chiefs (IAFC), the International Association of Fire Fighters (IAFF), and the Metropolitan Fire Chiefs Association (IAFC et al.); IAFF; the Boulder Regional Emergency Telephone Service Authority (BRETSA); and NextNav filed oppositions to the CTIA Petition. The Texas 9-1-1 Alliance and the Municipal Emergency Communication Districts Association (Texas 911 Entities) and the National Sheriffs' Association (NSA) filed comments on the CTIA Petition. APCO, the International Association of Chiefs of Police, Major Cities Chiefs Association, Major County Sheriffs of America, NASEMSO, NPSTC, and NSA (APCO et al.) filed an opposition to the CTIA Petition and expressed support for the APCO Petition. Polaris Wireless, Inc. (Polaris) and AT&T Services, Inc. on behalf of AT&T Mobility (AT&T) filed reply comments. NENA: The 9-1-1 Association (NENA) filed a reply to oppositions. T-Mobile USA, Inc. (T-Mobile) filed a reply in support of the CTIA Petition. CTIA filed a reply to oppositions and comments (CTIA Reply). Apple and Google filed *ex parte* letters in the proceeding.

III. DISCUSSION

16. We dismiss both petitions as defective for failing to meet the requirements for reconsideration of a Commission decision and, on alternative and independent grounds, we deny the petitions on the merits.

1. The Petitions Are Procedurally Defective

17. Pursuant to section 1.429 of the Commission's rules, parties may petition for reconsideration of final orders in a rulemaking proceeding.⁴⁷ But reconsideration is appropriate only where the petitioner relies on arguments relating to events that have occurred or circumstances that have changed since the last opportunity to present such matters to the Commission, and petitions for reconsideration are not to be used merely to reargue points previously advanced and rejected.⁴⁸

18. *The Petitions are repetitive.* We find CTIA's petition procedurally improper because it repeats arguments raised by other commenters in this proceeding and fully addressed in the *Sixth Report and Order*. After making clear that we intended to keep the longstanding April 2021 and 2023 z-axis deadlines, the Commission noted in the *Sixth Report and Order* that some CMRS providers had asserted that the ongoing COVID-19 pandemic could delay or otherwise adversely affect the testing of vertical location technologies.⁴⁹ The Commission further noted that while the pandemic created recent challenges, the Commission agreed with public safety commenters who pointed out that "vertical location requirements were adopted six years ago and [] the public urgently needs accurate 911 location."⁵⁰ The Commission therefore declined to change the long-established April 2021 deadline for z-axis implementation but stated:

⁴⁷ 47 CFR § 1.429(a).

⁴⁸ See 47 CFR § 1.429(b)(1); see also *id.* § 1.429(l)(3) (providing for staff dismissal of a petition for reconsideration that plainly does not warrant consideration by the Commission, for example, if the petition relies on "arguments that have been fully considered and rejected by the Commission within the same proceeding"); *M&M Communications, Inc.*, Memorandum Opinion and Order, 2 FCC Rcd 5100, 5100, para. 7 (1987) (stating it is settled Commission policy that reconsideration "will not be granted merely for the purpose of again debating matters on which the agency has once deliberated and spoken") (quoting *Knoxville Broadcasting Corp.*, 87 F.C.C.2d 1103, 1107 (1981)); *Connect America Fund; High-Cost Universal Service Support*, WC Docket Nos. 10-90 and 05-337, Sixth Order on Reconsideration and Memorandum Opinion and Order, 28 FCC Rcd 2572, 2573, para. 3 (2013) (stating that "if a petition for reconsideration simply repeats arguments that were previously fully considered and rejected in the proceeding, it will not likely warrant reconsideration"); *WWJZ, Inc.*, Memorandum Opinion and Order, 37 FCC 685, 686, para. 2 (1964) (stating "it is universally held that rehearing will not be granted merely for the purpose of again debating matters on which the tribunal has once deliberated and spoken"), *aff'd sub nom. Lorain Journal Co. v. FCC*, 351 F.2d 824 (D.C. Cir. 1965), *cert. denied*, 397 U.S. 967 (1966).

⁴⁹ *Sixth Report and Order*, 35 FCC Rcd at 7757-58, para. 14 n.35 (citing Letter from John Nakahata, Kristine Laudadio Devine, and Landyn Wm. Rookard, Counsel for T-Mobile USA, Inc., Harris, Wiltshire & Grannis LLP, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 11-12 (filed July 9, 2020) (stating that the COVID-19 pandemic "has jeopardized testing plans for the remainder of 2020 and potentially beyond") and Letter from Joseph P. Marx, Assistant Vice President, Federal Regulatory, AT&T, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 2 (filed July 9, 2020) (AT&T July 9, 2020 *Ex Parte* Letter) (stating that "AT&T anticipates challenges associated with the testing required to demonstrate compliance for the upcoming April 2021 benchmarks as a result of the current COVID-19 pandemic").

⁵⁰ *Sixth Report and Order*, 35 FCC Rcd at 7757-58, para. 14 n.35 (citing Letter from Ralph A. Haller, Chairman, NPSTC, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 1-2 (filed July 8, 2020) (stating that NPSTC does not support delay of E911 location requirements to wait for a reduction in the prevalence of the COVID pandemic and that "multiple location technology vendors, including Apple, Google[,] NextNav and Polaris have indicated that their services either already are, or soon can be, made available on a nationwide basis") and Letter from Alan Perdue, Executive Director, Safer Buildings Coalition, to Ajit Pai, Chairman, Michael O'Rielly, Commissioner, Brendan Carr, Commissioner, Jessica Rosenworcel, Commissioner, and Geoffrey Starks, Commissioner, FCC, PS Docket No. 07-114, at 2 (filed July 9, 2020)).

To address any potential impact of the pandemic on upcoming testing, CMRS providers should work with public safety agencies in the relevant jurisdictions to facilitate the testing process as much as possible. In addition, parties that can show good cause due to pandemic-related hardship may seek a waiver in accordance with the Commission's rules.⁵¹

CTIA's attempt to reargue this point is repetitive and untimely, and CTIA has failed to offer sufficient factual details about any of its individual member service providers that would support grant of a waiver to a particular provider.

19. Similarly, we find that APCO's arguments are repetitive and misconstrue the record. In its reconsideration petition, APCO does not allege any change in circumstances or offer any newly discovered facts, but rather, reargues points that it previously advanced and that the Commission rejected in the *Sixth Report and Order*. Specifically, in the *Sixth Report and Order*, the Commission considered and rejected APCO's suggestion that the Commission revise its rules to require CMRS providers to provide dispatchable location for a minimum percentage of 911 calls.⁵² The Commission also considered and rejected APCO's argument that requiring dispatchable location only when "technically feasible" was ineffective.⁵³ We therefore dismiss the Petition as repetitive.

20. APCO also argues that "[t]he decision to convert the NEAD benchmark to an ambiguous 'any database' benchmark was arbitrary and capricious" and that there was insufficient notice for the rule change.⁵⁴ But in the *Fifth Further Notice*, the Commission anticipated the possibility of the NEAD's failure and proposed allowing CMRS providers to use reference points from other databases to support dispatchable location.⁵⁵ The Commission also noted that "[o]ur proposal to expand the range of possible dispatchable location solutions for CMRS providers is also consistent with the approach to dispatchable location that we recently adopted for non-CMRS providers in the Kari's Law and RAY BAUM's Act proceeding."⁵⁶ Notably, the nationwide CMRS providers abandoned the NEAD in February of this year and a wide range of parties, including APCO, commented on that development in this proceeding.⁵⁷ Because the record in this proceeding affirmed that a diverse array of technological approaches could be

⁵¹ *Sixth Report and Order*, 35 FCC Rcd at 7757-58, para. 14 n.35 (citing 47 CFR §§ 1.3, 1.925).

⁵² *Sixth Report and Order*, 35 FCC Rcd at 7774-75, para. 50 & n.142.

⁵³ *Sixth Report and Order*, 35 FCC Rcd at 7775-76, para. 52 & n.151 (citing to *Kari's Law/RAY BAUM'S Act Report and Order* and noting that "if the Commission receives a complaint or petition alleging that a provider is not providing dispatchable location and the provider asserts that doing so is not technically feasible or cost-effective, the provider must show that its assertion has an objective and reasonable basis in light of the state of technology at the time the assertion is made"); Letter from Jeffrey S. Cohen, Chief Counsel, and Mark S. Reddish, Senior Counsel, APCO International, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 3 (filed July 7, 2020) (APCO July 7, 2020 *Ex Parte* Letter) (stating "the draft Order should foreclose carriers from exploiting ambiguity regarding technical feasibility and cost-effectiveness" and "APCO's recommendation is to eliminate the qualifying language, 'technically feasible and cost-effective'").

⁵⁴ APCO Petition at 2 (claiming this rule change was "not contemplated" in the *Fifth Further Notice*).

⁵⁵ *Fifth Further Notice*, 34 FCC Rcd at 11625, para. 79 ("Accordingly, we propose to allow CMRS providers to demonstrate dispatchable location deployment by means other than NEAD reference points.").

⁵⁶ *Fifth Further Notice*, 34 FCC Rcd at 11626, para. 81. Commenters in both proceedings expressed skepticism about the viability of the NEAD, but commenters suggested that dispatchable location may be achievable if carriers can leverage other data sources. *Fifth Further Notice*, 34 FCC Rcd at 11625-66, para. 80; *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*, PS Docket Nos. 18-261 and 17-239, GN Docket No. 110-117, Report and Order, 34 FCC Rcd 6607, 6661-62, para. 152 & n.417 (2019) (*Kari's Law/RAY BAUM'S Act Report and Order*). Accordingly, in this proceeding the Commission broadly sought comment on alternative data sources as well as specific proposals. *Fifth Further Notice*, 34 FCC Rcd at 11625-66, paras. 80-83.

⁵⁷ APCO July 7, 2020 *Ex Parte* Letter at 2.

used to provide dispatchable location, the Commission expanded the dispatchable location requirement to include all databases that meet our requirements while deleting the now-unnecessary reference to the NEAD.⁵⁸

21. *The Petitions are untimely.* Although both petitions are styled as seeking reconsideration of the *Sixth Report and Order*, the Commission established the requirements that CTIA and APCO now ask us to reconsider *five years ago* in the 2015 *Fourth Report and Order*.

22. Specifically, despite CTIA's references to the "Sixth R&O benchmarks" and the "Sixth R&O's timelines,"⁵⁹ the Commission established the 2021 and 2023 deadlines in the 2015 *Fourth Report and Order* and found that they "provide[] reasonable and appropriate incentives for CMRS providers to ensure the success of their preferred dispatchable location solution and/or a z-axis metric alternative."⁶⁰ Moreover, the Commission established the 2021 and 2023 deadlines based on CMRS providers' own commitments in the Amended Roadmap, which recognized that vertical location should be prioritized in the geographic areas with the greatest density of multi-story buildings.⁶¹ The Commission reaffirmed these dates in the *Fifth Report and Order*, finding that "implementing the 3-meter metric on schedule is technically feasible," and rejected proposals for beginning with a less rigorous metric.⁶² In the *Sixth Report and Order*, the Commission made clear that it was keeping the z-axis deadlines, did not seek comment on changing those time frames, and did not receive any petitions for rulemaking requesting that the time frames be changed yet again.⁶³ The Commission also noted that carrier comments asking it to

⁵⁸ *Sixth Report and Order*, 35 FCC Rcd at 7773, para. 49 & n.136.

⁵⁹ CTIA Petition at 2, 15; *see also id.* at 12 (referring to the "timelines adopted in the Sixth R&O"). In the *Sixth Report and Order*, the Commission (1) expanded options for nationwide CMRS providers to deploy technologies that meet the April 2021 and April 2023 deadlines; (2) adopted a new January 6, 2022 dispatchable location requirement; and (3) adopted a vertical location requirement for nationwide CMRS providers to meet by April 3, 2025. CTIA does not challenge the Commission's decision to expand flexibility under those timelines. Instead, CTIA challenges the Commission's rejection of the mobile OS-based framework, claiming that the *Sixth Report and Order* unnecessarily narrowed the scope of the *Fifth Further Notice*, "unreasonably excluded consideration of alternatives, and was arbitrary and capricious." CTIA Petition at 13. CTIA adds that the Commission's "rejection of the mobile OS-based framework's initial benchmark of ± 3 meters for 50 percent of calls in the Test Bed is inconsistent with Commission precedent of phasing-in new location accuracy solutions over time." *Id.* In effect, for a second time, CTIA seeks to invalidate the z-axis metric adopted in the *Fifth Report and Order* in favor of the less stringent metric underlying the mobile OS framework.

⁶⁰ *Fourth Report and Order*, 30 FCC Rcd at 1304, para. 117.

⁶¹ *See Fourth Report and Order*, 30 FCC Rcd at 1300, 1302-05, paras. 109, 112-120; Letter from Joan Marsh, AT&T Services, Inc., Kathleen O'Brien Ham, T-Mobile USA, Ray Rothermel, Sprint, and Kathleen Grillo, Verizon, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 2 (filed Jan. 21, 2015), <https://ecfsapi.fcc.gov/file/60001014958.pdf> (Amended Roadmap Cover Letter) (attaching Addendum to Roadmap); Letter from John Wright, APCO, Charles W. McKee, Sprint Corporation, Joan Marsh, AT&T Services, Inc., Kathleen O'Brien Ham, T-Mobile USA, Inc., Christy Williams, NENA, and Kathleen Grillo, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 (filed Nov. 18, 2014), <http://apps.fcc.gov/ecfs/document/view?id=60000986637> (Roadmap Cover Letter) (attaching "Roadmap for Improving E911 Location Accuracy" (Roadmap)). Together, the Roadmap and the Addendum are known as the "Amended Roadmap."

⁶² *Fifth Report and Order*, 34 FCC Rcd at 11597, para. 11; *see also id.* at 11600, para. 14 ("We further conclude that adopting the 3-meter metric will keep deployment of z-axis information to public safety officials on schedule."); *id.* at 11600, para. 15 (rejecting proposals for a phased approach that would involve setting a 4-meter metric initially and tightening the metric to three meters by 2023).

⁶³ *Sixth Report and Order*, 35 FCC Rcd at 7757, 7764, paras. 14, 27.

extend the deadlines in response to the *Fifth Further Notice of Proposed Rulemaking* amounted to untimely petitions for reconsideration of rules that were already settled.⁶⁴

23. The nationwide CMRS providers now seek to delay until 2025 the commitments they made in 2015 to deliver meaningful vertical location in the top CMAs. Petitions for reconsideration of the *Fourth* and *Fifth Report and Order* were due five years ago and almost a year ago, respectively, yet having failed to seek reconsideration of either order, CTIA again asks us to upend the z-axis deadlines.⁶⁵ As the Commission stated in the *Sixth Report and Order*, quoting IAFF, “[t]he process of reaching a consensus position on these important issues is too demanding on key stakeholders to constantly revisit the decision year after year.”⁶⁶ CTIA’s arguments are no more timely today than when they were presented to the Commission earlier, and we dismiss the petition as defective for failing to meet the requirements for reconsideration of a Commission decision.⁶⁷

24. Similarly, to the extent APCO is asking the Commission to substitute a dispatchable location requirement based on minimum percentage of calls rather than the number of database reference points,⁶⁸ that portion of the Petition is five years late. The Commission adopted the deployment and reference point requirements in the 2015 *Fourth Report and Order* based on the Amended Roadmap, which APCO endorsed.⁶⁹ This portion of the request for reconsideration is therefore untimely.

2. The Petitions Lack Merit

25. As an alternative and independent basis for rejecting the CTIA and APCO Petitions, we deny them on the merits and once again affirm our vertical location timelines and rules.

26. *Postponement of Stage Zb testing has not undermined the Commission’s deadlines.* We disagree with CTIA’s claim that postponement of Stage Zb testing due to the pandemic has “derailed the prospects for achieving the Sixth R&O’s timelines.”⁷⁰ CTIA asserts that Stage Zb was preparing to test

⁶⁴ *Sixth Report and Order*, 35 FCC Rcd at 7764, para. 27 & n.78.

⁶⁵ Petitions for reconsideration of the *Fourth Report and Order* were due within 30 days after publication of a summary of the *Fourth Report and Order* in the Federal Register, or on April 3, 2015. Petitions for reconsideration of the *Fifth Report and Order* were due within 30 days after publication of a summary in the Federal Register, or on February 18, 2020.

⁶⁶ *Sixth Report and Order*, 35 FCC Rcd at 7764-65, para. 28 (quoting Letter from Harold A. Schaitberger, General President, IAFF, to Ajit Pai, Chairman, FCC, PS Docket No. 07-114, at 1 (filed May 15, 2020)).

⁶⁷ 47 CFR § 1.429(b)(1), (l)(3); *see also Federal-State Joint Board on Universal Service; Blanca Telephone Company*, CC Docket No. 96-45, Second Order on Reconsideration and Order, 35 FCC Rcd 2641, 2648, para. 19 (2020) (stating that “[l]egal determinations and factual conclusions previously reached by the Commission in the same proceeding are not changed circumstances satisfying the requirements for appeal,” and “[t]his is true even where the petitioner has embellished or expanded upon its original arguments by presenting additional supporting evidence in an attempt to reinforce its original contentions”); *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142, Second Report and Order and Order on Reconsideration, 35 FCC Rcd 6793, 6811-12, para. 38 (2020) (dismissing petitions for reconsideration as procedurally defective where “[a]ll of the requests raised in the petitions have been considered and rejected already by the Commission in the underlying order”).

⁶⁸ APCO Petition at 3.

⁶⁹ *Fourth Report and Order*, 30 FCC Rcd at 1263, para. 11 (“On November 18, 2014, APCO, NENA, AT&T Mobility, Sprint Corporation, T-Mobile USA, Inc., and Verizon Wireless (collectively, ‘Roadmap Parties’) submitted the Roadmap.”); *id.* at 1261-62, para. 6 (“[i]ncorporating all of these elements,” including the Roadmap proposal, “we adopt the following E911 location rules,” including the current vertical location dispatchable location requirements).

⁷⁰ CTIA Petition at 2; *see also* CTIA Reply to Oppositions, PS Docket No. 07-114, at 4 (filed Nov. 13, 2020) (CTIA Reply) (asserting that “providers’ ability to demonstrate compliance with the Commission’s rules is severely limited by the on-going pandemic”).

both “network-based and mobile OS-based Z-axis solutions.”⁷¹ To the extent Stage Zb would have tested mobile OS-based technologies, the Commission found in the *Sixth Report and Order* that deployment of these solutions has no bearing on whether the 3-meter metric and z-axis timelines are feasible.⁷² The Commission noted that the solutions of NextNav and Polaris “are already available to CMRS providers” and that the Commission had determined in the *Fifth Report and Order* that compliance with the 3-meter metric was feasible within the timeframe in the rules.⁷³ The Commission concluded that test results regarding incremental progress on additional solutions were “irrelevant” to that decision.⁷⁴ Carriers should have prepared—indeed, should have been preparing for years—to meet the Commission’s benchmarks. And to the extent circumstances in specific cases might warrant a waiver of these benchmarks, an affected carrier is obliged to explain with sufficient particularity why it meets all the good cause requirements to support a waiver grant.⁷⁵

27. To the extent Stage Zb would have tested barometric sensor-based solutions, we do not agree that the postponement of Stage Zb makes it impossible to validate these solutions. To the contrary, as NENA, NASEMSO, NextNav, and others assert, providers do not need any additional testing to validate z-axis solutions that have been successfully tested.⁷⁶ The solutions developed by NextNav and Polaris have undergone multiple rounds of testing in the Test Bed process of both the Communications, Security, Reliability & Interoperability Council (CSRIC) and CTIA.⁷⁷ As such, they have been validated, and may be used in connection with a certification by a provider deploying one of these solutions consistent with the manner in which it was tested. NextNav also points out that CTIA does not name the

⁷¹ CTIA Petition at 6 n.16.

⁷² *Sixth Report and Order*, 35 FCC Rcd at 7759-60, para. 19 n.52.

⁷³ *Sixth Report and Order*, 35 FCC Rcd at 7759-60, para. 19 n.52.

⁷⁴ *Sixth Report and Order*, 35 FCC Rcd at 7759-60, para. 19 n.52.

⁷⁵ In this regard, while the Commission has granted waivers of certain regulatory requirements over the course of the pandemic, those situations have involved satisfaction of the good cause waiver standard under section 1.3 or related Commission rules, including less of a lead time to comply with the requirements being waived, shorter periods for waivers granted, and/or fewer (if any) public safety implications. See, e.g., *Petition of Onvoy d/b/a Inteliquent, Inc. for Temporary Waiver of Section 61.3(bbb)(1)(ii) of the Commission’s Rules*, WC Docket No. 18-155, Order, 35 FCC Rcd 10385, 10386, para. 3 (Sept. 17, 2020) (stating “[w]e find good cause to grant, in part, Inteliquent’s Second Renewal Request, based on the information and representations the company has submitted detailing the effect the pandemic has had on Inteliquent and its customers,” but stating “[w]e renew the waiver only through December 1, 2020”); *Rural Health Care Universal Service Support Mechanism; Schools and Libraries Universal Service Support Mechanism*, WC Docket No. 02-60 and CC Docket No. 02-6, Order, 35 FCC Rcd 9416, 9416, para. 1 & note 4 (Sept. 3, 2020) (finding good cause to grant requests for extension of the waivers of the Rural Health Care program and E-Rate program gift rules due to the pandemic, through December 31, 2020); *Equal Employment Opportunity Recruitment Requirements for Broadcast Licensees & Multi-Channel Video Programming Distributors*, Order, 35 FCC Rcd 4551, 4551, para. 2 (MB 2020) (due to the pandemic, “[t]he Bureau finds good cause to waive” the EEO requirement of “broad recruitment outreach” and “to allow affected broadcast licensees and MVPDs to return operations to full strength once circumstances permit [by] re-hiring of released employees”).

⁷⁶ NENA Reply to Oppositions, PS Docket No. 07-114, at 4 (filed Nov. 13, 2020) (NENA Nov. 13, 2020 Reply); Opposition of NextNav, LLC, PS Docket No. 07-114, at ii, 8-10 (filed Nov. 3, 2020) (NextNav Nov. 3, 2020 Opposition); Opposition of NASEMSO, PS Docket No. 07-114, at 3 (filed Oct. 30, 2020) (NASEMSO Oct. 30, 2020 Opposition); IAFF Opposition to CTIA Petition for Reconsideration, PS Docket No. 07-114, at 1-2 (filed Nov. 3, 2020) (IAFF Nov. 3, 2020 Opposition); NPSTC Opposition to CTIA Petition for Reconsideration, PS Docket No. 07-114, at 4-6 (filed Nov. 2, 2020) (NPSTC Nov. 2, 2020 Opposition); IAFC et al. Opposition to CTIA Petition for Reconsideration, PS Docket 07-114, at 4 (filed Nov. 2, 2020) (IAFC et al. Nov. 2, 2020 Opposition); BRETSA Opposition to CTIA Petition for Reconsideration of the Sixth Report and Order, PS Docket No. 07-114, at 1-3 (filed Nov. 3, 2020) (BRETSA Nov. 3, 2020 Opposition).

⁷⁷ See, e.g., *Fifth Report and Order*, 34 FCC Rcd at 11597-98, 11601-02, paras. 11-12, 18; *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Fourth Further Notice of Proposed Rulemaking, 34 FCC Rcd 1650, 1659-60, para. 24 & n.64 (2019) (discussing the results of testing in the CSRIC Test Bed).

network-based provider that might have been tested in Stage Zb and states that this “rais[es] legitimate questions about whether it could have involved a location service provider that is legitimately positioned to deploy a solution that can meet the 3 meter/80% requirements by the initial April 2021 deadline.”⁷⁸

28. In contending that validation of z-axis technologies requires more testing, CTIA cites the Commission’s statement in the *Fifth Report and Order* that once the z-axis metric is established, CMRS providers must test and validate against the metric the z-axis solutions they intend to use for compliance purposes.⁷⁹ AT&T also urges the Commission to clarify this statement.⁸⁰ We reiterate that under our rules, validation of a provider’s chosen z-axis solution is intended to support the provider’s certification “that the indoor location technology (or technologies) used in [its] networks are deployed consistently with the manner in which they have been tested in the test bed.”⁸¹ The rules also provide that “CMRS providers must validate technologies intended for indoor location, including dispatchable location technologies and technologies that deliver horizontal and/or vertical coordinates, through an independently administered and transparent test bed process, in order for such technologies to be presumed to comply with the location accuracy requirements of this paragraph.”⁸² Further, the rules list the “minimal requirements in order for the test results to be considered valid for compliance purposes.”⁸³ The statement in the *Fifth Report and Order* that CMRS providers must validate the z-axis solution they intend to use means that the solution must be shown through the Test Bed process to meet the z-axis metric before providers can use it in their compliance certification. It does not mean that to validate z-axis solutions, CMRS providers must duplicate testing that has already been done. The Commission found in the *Fifth Report and Order* that existing test data demonstrate that the two tested solutions can meet the 3-meter metric within the timeframes established in the rules, and the Commission rejected arguments by the providers and CTIA that the data were insufficient in various respects.⁸⁴ These findings also apply with respect to use of these data to validate the two tested solutions.

29. As the Commission stated in the *Sixth Report and Order*, providers may seek a waiver if the pandemic creates provider-specific harms that meet the Commission’s waiver standard. Section 1.3 of the rules provides that the Commission may waive any provision of the rules on its own motion or on

⁷⁸ NextNav Nov. 3, 2020 Opposition at 8.

⁷⁹ CTIA Petition at 6-7 & n.19 (citing *Fifth Report and Order*, 34 FCC Rcd at 11601, para. 16 n.64); CTIA Reply at 5 & n.12; *see also* Reply of T-Mobile USA in Support of CTIA’s Petition for Reconsideration, PS Docket No. 07-114, at 7 & n.33 (filed Nov. 13, 2020) (T-Mobile Nov. 13, 2020 Reply).

⁸⁰ Reply Comments of AT&T, PS Docket No. 07-114, at 3 (filed Nov. 13, 2020) (AT&T Nov. 13, 2020 Reply Comments).

⁸¹ 47 CFR §§ 9.10(i)(2)(iii)(A), 9.10(i)(3)(i); *see also* *Fourth Report and Order*, 30 FCC Rcd at 1310-11, para. 137.

⁸² 47 CFR § 9.10(i)(3)(i).

⁸³ 47 CFR § 9.10(i)(3)(i)(A)-(D). The *Fifth Report and Order* notes that the Stage Z procedures were based on the recommendations of the Commission’s fourth Communications, Security, Reliability & Interoperability Council (CSRIC IV) and that testing followed guidelines developed by the Alliance for Telecommunications Industry Solutions’ (ATIS) Emergency Services Interconnection Forum (ESIF), including ESIF’s Emergency Services and Methodologies (ESM) subcommittee. In addition, ATIS provided guidelines on test building and test point selection and oversaw implementation of the Test Bed by the Administrator-Executor, and the Test Bed received guidance from the TAC, which includes representatives of the nationwide wireless service providers, as well as APCO and NENA. *Fifth Report and Order*, 34 FCC Rcd at 11602-03, para. 19 (citing Stage Z Test Report at 14).

⁸⁴ In the *Fifth Report and Order*, the Commission found that “implementing the 3-meter metric on schedule is technically feasible” and that “[t]wo vendors have consistently shown in testing that they can meet or surpass” the 3-meter standard. *Fifth Report and Order*, 34 FCC Rcd at 11597, para. 11. The Commission also rejected arguments that additional testing of barometric sensor-based technologies in extreme cold weather conditions was needed; that additional testing in rural morphologies was needed; that the Test Bed did not adequately test z-axis solutions under real-world conditions; and that further testing on a wider variety of handsets was needed. *Id.* at 11601-03, paras. 17-20.

petition “if good cause therefor is shown.”⁸⁵ However, we caution service providers, particularly those involved in earlier testing efforts sufficient to validate and support certification with respect to the specific provider’s service, that the standard for waiving our rules is extraordinary circumstances. A request for waiver must show special circumstances warranting a deviation from the general rule as well as that such a deviation will serve the public interest.⁸⁶ Moreover, a party seeking a waiver bears a heavy burden to demonstrate that the arguments for waiver are substantially different from those that have been carefully considered in the rulemaking proceeding.⁸⁷ To date, none of the nationwide providers has provided any specifics regarding steps it has taken or plans to take prior to the April 2021 deadline to select, test, or deploy specific z-axis solutions. Moreover, neither CTIA nor any of the nationwide providers has sought a waiver of the April 2021 deadline. To the extent that the providers claim to need additional time beyond the April 2021 deadline to deploy solutions that meet the 3-meter/80% standard, they have not proposed alternative timelines or proposed any steps that would minimize the amount of additional time needed. In the absence of any such showing, therefore, none of the providers has presented evidence in the record thus far that would meet the standard for a waiver. Nonetheless, our denial of CTIA’s reconsideration petition does not preclude individual providers from submitting future waiver petitions based on an appropriate and sufficient showing that they have met the waiver standard.

30. *The indoor location accuracy deadlines are not a mandate for any particular technology.* CTIA next asserts that the indoor location accuracy benchmarks are in effect a mandate that providers use the barometric sensor-based solutions offered by NextNav and Polaris.⁸⁸ We disagree and note that setting a standard using validated technical data does not translate into a mandate for any particular technology to be employed. Our vertical location rules do not require use of any particular technology or vendor. If technologies other than the barometric sensor-based solutions of NextNav and Polaris comply with these standards and timelines, CMRS providers are free to use them. The Commission also clarified in the *Sixth Report and Order* that providers may use different z-axis technologies in different areas to meet the deadlines.⁸⁹ We disagree with CTIA’s suggestion that if the NextNav and Polaris solutions are the only currently available solutions that could meet the accuracy standard, this somehow converts our rule into an improper “mandate” to use a specific technology and compels us to postpone the April 2021 deadline until other solutions emerge. This turns the principle of technological neutrality on its head. Contrary to CTIA’s assertion, the burden is on each of the nationwide providers to choose an available solution by the deadline that meets the standard.

31. *The Commission did not improperly rely on vendor claims.* CTIA also argues that the Commission relied too heavily in the *Sixth Report and Order* on the claims of vendors that “have not panned out.”⁹⁰ In particular, CTIA asserts that the Commission erroneously relied on statements of

⁸⁵ 47 CFR § 1.3; *see also* 47 CFR § 1.925(b)(3) (in the context of wireless radio services licenses, “[t]he Commission may grant a request for waiver if it is shown that: (i) The underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or (ii) In view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative”). In practice, the “waiver standard [at 47 CFR § 1.3] and the waiver standard applied in the context of wireless radio services licenses, 47 C.F.R. § 1.925, have been found to be substantially the same.” *Ted W. Austin, Jr. Application for Review of Order Denying Request for Waiver of Down Payment Deadline for Auction 62*, Memorandum Opinion and Order, 30 FCC Rcd 3486, 3488 n.18 (2015); *see also BellSouth Corp. v. FCC*, 162 F.3d 1215, 1225 n.10 (D.C. Cir. 1999) (similar).

⁸⁶ *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (citing *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969)).

⁸⁷ *Industrial Broadcasting Co. v. FCC*, 437 F.2d 680, 683 (D.C. Cir. 1970).

⁸⁸ CTIA Petition at 2; *see also id.* at 7-12.

⁸⁹ *Sixth Report and Order*, 35 FCC Rcd at 7759, para. 18 n.48.

⁹⁰ CTIA Petition at 7.

NextNav and Polaris that their technologies would develop into commercially ready solutions in advance of the April 2021 deadline, but that these vendors have not successfully integrated their solutions into the devices used by most wireless 911 callers.⁹¹ CTIA also argues that without such integration, the Commission shifted responsibility onto consumers to opt into 911 vertical location on an individual device basis, which contravenes Commission policy.⁹² In addition, CTIA claims that the Commission erroneously relied on statements by NextNav to conclude that the barometric pressure sensors essential to its solution will be available in the majority of smartphones.⁹³

32. As a preliminary matter, we note that NextNav and Polaris have asserted throughout this proceeding that their solutions will be available for deployment by the initial deadline in April 2021.⁹⁴ CTIA, in contrast, offers only speculation that these solutions will not be ready notwithstanding what its own prior Test Bed results showed. Furthermore, service provider commenters have failed to explain why they have been unable to work with relevant stakeholders (vendors, handset manufacturers, public safety entities) to help meet the benchmark on the schedule adopted by the Commission—even with years of lead time to help achieve the capability and implement it once it became technically feasible.⁹⁵

33. We also disagree with CTIA’s claim that any opt-in requirement associated with these solutions would “contravene[] the FCC’s long-held view that the 9-1-1 rules do not envision location accuracy as being a product of customer choice and, more broadly, the societal importance of 9-1-1.”⁹⁶ While it is preferable for 911 service to require as few steps by the caller as possible, concerns for consumer privacy and proprietary information are also relevant. The Commission has no rule or policy stating that 911 may *never* involve any sort of choice or opt-in on the part of consumers or that requiring end user consent to a location accuracy solution would be inconsistent with the importance of 911. To the contrary, recent precedent exists for consumer choice or action in our 911 dispatchable location rules for mobile text, multi-line telephone system (MLTS), interconnected VoIP, and Telecommunications Relay Services (TRS), which allow service providers to rely on user-generated location information in some circumstances.⁹⁷ As the Commission stated in the *Sixth Report and Order*, we expect CMRS providers to

⁹¹ CTIA Petition at 7-8; CTIA Reply at 2, 6.

⁹² CTIA Petition at 8-9; CTIA Reply at 2, 7.

⁹³ CTIA Petition at 9.

⁹⁴ See *Sixth Report and Order*, 35 FCC Rcd at 7765, para. 28 & n.84; NextNav Nov. 3, 2020 Opposition at 11 (stating that “[a]s NextNav has repeatedly indicated, NextNav is rapidly building out its highly accurate vertical location network in 105 CMAs in the United States” and that “[t]his infrastructure will be available for use by wireless carriers well in advance of the April 2021 deadline”); see also Press Release, PR Newswire, NextNav’s Vertical Location Service Now Available in Fifty US Markets (Nov. 24, 2020), https://www.prnewswire.com/news-releases/nextnavs-vertical-location-service-now-available-in-fifty-us-markets-301179373.html?tc=eml_cleartime (stating that NextNav’s vertical positioning service is now available in fifty major U.S. markets and that NextNav “is already on track to exceed FCC coverage requirements for vertical location by the end of March 2021”).

⁹⁵ As noted, we lack the record to assess whether specific service providers are having bona fide difficulties that would support granting a waiver.

⁹⁶ CTIA Petition at 9 (footnote and internal quotations omitted); see also CTIA Reply at 2 (stating that “a consumer-dependent 9-1-1 solution is contrary to long-standing Commission policy”).

⁹⁷ For example, the mobile text rules require automated generation of the caller’s dispatchable location if it is technically feasible to do so, but they provide an option for user-generated location if it is not. See 47 CFR § 9.10(q)(10)(v). The 911 rules for MLTS, interconnected VoIP, and TRS similarly allow provision of user-generated location under some circumstances. See 47 CFR §§ 9.11(b)(4)(ii); 9.14(d)(4)(ii) and (e)(4)(ii); 9.16(b)(3)(iii). User-generated location necessarily requires choice or action by the consumer, such as responding to a prompt. We also note that the Amended Roadmap specifically contemplated that implementation of any z-axis solution may require consumer action. See Addendum to Roadmap at 7-8 (stating that z-axis solutions “may require consumers to purchase equipment and/or to incur additional costs” and that to the extent new handset hardware is needed or

(continued....)

clearly and conspicuously disclose the benefits of any location solution they offer so that consumers can make informed decisions whether to enable it.⁹⁸

34. Moreover, the Commission’s decision in the *Sixth Report and Order* did not turn on whether the majority of smartphones are equipped with barometric pressure sensors. The Commission noted evidence in the record of this proceeding that most smartphones in the market are equipped with barometric sensors and that as of 2019, 81% of Americans owned a smartphone.⁹⁹ On the basis of this, the Commission concluded that it “expect[s] that the solutions offered by Polaris and NextNav could be made widely available to consumers.”¹⁰⁰ We continue to believe that this is the case, and CTIA offers nothing to persuade us otherwise. The Commission also concluded in the *Sixth Report and Order* that the unavailability of barometric sensor-based solutions for certain older handsets does not justify withholding z-axis location information with 3-meter accuracy from all consumers until 2025.¹⁰¹ We decline to reconsider that conclusion here.

35. The Commission also concluded in the *Sixth Report and Order* that even if it assumes that the NextNav and Polaris solutions would only benefit consumers in major markets who have barometer-equipped handsets and who choose to opt in to the solution, this would yield a significant public safety benefit precisely because those consumers would have access by April 2021 to z-axis solutions meeting the 3-meter/80% of calls standard.¹⁰² Further, consumers without z-axis capable devices would have the ability to acquire them.¹⁰³ By contrast, the Commission noted that “the T-Mobile/CTIA alternative would provide far less consumer benefit because it would deprive *all* consumers of access to z-axis solutions meeting the 3-meter/80% of calls standard for an additional four years—until April 2025.”¹⁰⁴ The Commission properly considered the record in reaching this conclusion, and we see no reason to alter it here.

36. Moreover, CTIA’s attempt to characterize the z-axis timelines as “obligations that cannot be met” ignores the significant role that CMRS providers themselves play in implementing solutions to meet our longstanding z-axis deadlines.¹⁰⁵ Polaris points out that “[t]he full burden of implementation was never placed solely on the carriers, but implementation of barometric-based vertical location technology was not possible in a vacuum without carrier involvement.”¹⁰⁶ Polaris also points out that

existing handset software cannot be updated over-the-air or manually, “a consumer may need to purchase a new handset and, depending on the service provider and the customer’s existing plan, a modified service plan”).

⁹⁸ *Sixth Report and Order*, 35 FCC Rcd at 7769, para. 39.

⁹⁹ *Sixth Report and Order*, 35 FCC Rcd at 7760, para. 19 & nn.55 & 56 (citing, inter alia, *Fifth Report and Order*, 34 FCC Rcd at 11604, para. 23 & n.100, which noted that “since 2014, the iPhone 6 and later models have had a barometer, while Samsung Galaxy smartphones have had barometers since 2011 since 2011,” and Pew Research Center, *Mobile Fact Sheet* (June 12, 2019), <https://www.pewresearch.org/internet/fact-sheet/mobile/>).

¹⁰⁰ *Sixth Report and Order*, 35 FCC Rcd at 7760, para. 19; *see also id.* at 7770, para. 41 (“[T]he record indicates that barometric sensor-based solutions, such as those offered by Polaris and NextNav, can be made widely available to consumers.”).

¹⁰¹ *Sixth Report and Order*, 35 FCC Rcd at 7765, para. 29.

¹⁰² *Sixth Report and Order*, 35 FCC Rcd at 7767, para. 32.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ CTIA Petition at 11; *see also* AT&T Nov. 13, 2020 Reply Comments at 2 (asserting that due to circumstances beyond their control, carriers “have no ability to meet the Commission’s April 2021 deadline”); T-Mobile Nov. 13, 2020 Reply at 4 (stating that it is impossible for carriers to meet the Commission’s vertical location certification requirements by the April 2021 deadline).

¹⁰⁶ Reply Comments of Polaris, Inc., PS Docket No. 07-114, at 4 (filed Nov. 13, 2020) (Polaris Nov. 13, 2020 Reply).

successful implementation of any z-axis solution requires collaboration among wireless service providers, handset and OS providers, and solutions providers, but that carriers have failed to take any role in pursuit of a collaborative solution.¹⁰⁷ NENA states that “[i]t appears that, instead of focusing efforts on investing in and deploying vertical location technology, certain CMRS providers have placed their bets on either the emergence of an OS-based solution that meets public safety’s needs, or on the Commission’s willingness to change its rules to accommodate the providers.”¹⁰⁸ The Commission underscored the role of CMRS providers in timely deployment of z-axis solutions in the *Fifth Report and Order*, where it noted that providers must collaborate with handset and OS providers to deploy z-axis solutions and stated that “we believe CMRS providers are capable of negotiating requirements with such third parties and establishing contractual timelines that will enable timely deployment of z-axis solutions in time to meet the deadlines in the rules.”¹⁰⁹

37. CTIA and supporting commenters offer no specific evidence of CMRS providers’ efforts to collaborate with these third parties or any third-party refusal of such efforts.¹¹⁰ In fact, CTIA states that CMRS providers have only recently engaged in efforts to encourage handset integration.¹¹¹ Nor have they sought our assistance in resolving any concrete impasse they may have encountered in negotiating with these third parties. Although AT&T, citing its own *ex parte* communication and that of Verizon, asserts that providers have sought Commission assistance in dealing with handset manufacturers,¹¹² the providers in these communications merely asked the Commission to take “meaningful action” or “appropriate action” to encourage handset manufacturers to implement z-axis solutions, without specifying what such action should be.¹¹³ We agree with commenters who assert that any difficulties

¹⁰⁷ Polaris Nov. 13, 2020 Reply at 4. Polaris also points out that CTIA has acknowledged this need for collaboration. Polaris Nov. 13, 2020 Reply at 4 (citing Letter from Matthew Gerst, Vice President, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 2 (filed Nov. 5, 2019)). NextNav similarly notes that wireless carriers have a critical role in the integration of features and capabilities into their networks and into the handsets they market for use by their customers. NextNav Nov. 3, 2020 Opposition at 11.

¹⁰⁸ NENA Nov. 13, 2020 Reply at 6.

¹⁰⁹ *Fifth Report and Order*, 34 FCC Rcd at 11607, para. 30. The Commission also stated that actions by carriers, device manufacturers, OS providers, chipmakers, or z-axis vendors that would prohibit technically capable devices from actually and effectively measuring and reporting z-axis information put the public and emergency personnel at unacceptable risk and that it would “take all appropriate action against any company that obstructs the effective deployment of such technologies in a timely manner.” *Id.* at 11605, para. 25.

¹¹⁰ CTIA characterizes the responsibility for integrating z-axis solutions into handsets as belonging solely to the solution vendors, asserting that “NextNav and Polaris have not successfully integrated their solutions in the devices used by most wireless 9-1-1 callers in the Top 25 CMAs.” CTIA Petition at 8. T-Mobile states that carriers “lack any way to force mobile OS providers to adopt, enable, or integrate any particular location solution.” T-Mobile Nov. 13, 2020 Reply at 12. AT&T states that it and other carriers have “notified device manufacturers of these requirements along with the Commission’s deadlines” but that “[s]ome commenters have a misconception that CMRS providers are able to force operating system providers and device manufacturers to integrate network-based z-axis solutions.” AT&T Nov. 13, 2020 Reply Comments at 6 & n.21 (citing AT&T July 9, 2020 *Ex Parte* Letter at 2).

¹¹¹ CTIA Reply at 3 (citing wireless providers’ “recent efforts to encourage handset integration”).

¹¹² See AT&T Nov. 13, 2020 Reply Comments at 6 & n.21 (citing AT&T July 9, 2020 *Ex Parte* Letter at 2 and Letter from Robert G. Morse, Verizon, to Marlene H. Dortch, FCC, PS Docket No. 07-114 (filed July 7, 2020) (Verizon July 7, 2020 *Ex Parte* Letter)).

¹¹³ See AT&T July 9, 2020 *Ex Parte* Letter at 2; Verizon July 7, 2020 *Ex Parte* Letter at 3. In the *Sixth Report and Order*, the Commission concluded that imposing 911 requirements on OS providers and original equipment manufacturers was outside the scope of the proceeding and deferred consideration of this issue. *Sixth Report and Order*, 35 FCC Rcd at 7757, para. 13 & n.33.

CMRS providers may face in meeting the April 2021 deadline are largely of their own making.¹¹⁴ There is nothing arbitrary about our refusal to weaken requirements based on CMRS providers' reluctance to comply with them.¹¹⁵

38. *The Commission properly considered the benefits of the nationwide providers' proposed approach.* CTIA also asserts that the Commission failed to consider adequately the benefits of the nationwide providers' proposed solution.¹¹⁶ In support of this, CTIA merely repeats the arguments it and the nationwide providers made earlier that mobile OS-based solutions would allow wireless 911 callers in smaller markets to benefit from access to z-axis information at the same time as those in larger markets and that these solutions would be deployed on the majority of current handsets.¹¹⁷ CTIA also claims that these proposals clearly fell within the scope of the *Fifth Further Notice* and that it was arbitrary and capricious for the Commission not to consider them.¹¹⁸

39. The Commission found these arguments to be untimely and outside the scope of the *Fifth Further Notice*, which sought comment on a timeline for achieving *more stringent* vertical location accuracy (i.e., floor level accuracy).¹¹⁹ Nonetheless, the Commission addressed these arguments on the merits in the *Sixth Report and Order*.¹²⁰ The Commission rejected the claim that it should prefer the OS-based alternative because it would provide z-axis location information for more 911 calls overall than solutions that only support z-axis location for 911 calls in major markets and found, instead, that "the fact remains that [this] solution would not meet the Commission's 3-meter/80% of calls accuracy standard by

¹¹⁴ See NSA Comments, PS Docket No. 07-114, at 3 (filed Oct. 30, 2020) (stating that the wireless carriers were delinquent in testing and deploying z-axis technologies, waiting three years after the vertical location requirement was adopted in 2015 to hold their first vertical location "Stage Z" Test Bed); BRETSA Nov. 3, 2020 Opposition at 3 (noting that service providers have had ample time to pursue the Google and Apple location solutions prior to 2019 or 2020 and "cannot claim prejudice as a result of their own failure to do so"); NENA Nov. 13, 2020 Reply at 3-4 (noting that "CTIA's members themselves play a pivotal role in whether barometric sensor-equipped handsets make it to U.S. consumers"); Joint Response of APCO et al. to Petitions for Reconsideration, PS Docket No. 07-114, at 2 (filed Nov. 2, 2020) (noting that "[i]f the carriers were acting in good faith to achieve the benchmark but encountering difficulty in their negotiations with handset and OS providers, perhaps they'd be seeking assistance from the Commission to resolve the impasse"); Polaris Nov. 13, 2020 Reply at 5 (stating that a compliant technology is available yet requires support and action on the carrier's part for implementation; "[t]hat the carriers have not done so and now face imminent failure to comply with the Order is not a reason to reconsider the implementation deadlines established in the Sixth R&O"); see also IAFF Nov. 3, 2020 Opposition at 5-6 (stating that the introduction of vertical location software in existing handsets "seems largely under the control of the carriers and operating system (OS) developers" and that the Commission "should be absolute in its refusal to reward OS providers for obstructing public safety by declining to consider any extension of the long awaited 2021 deadline").

¹¹⁵ T-Mobile asserts that "[t]he FCC cannot compel compliance with an impossibility, or penalize the failure to take impossible steps." T-Mobile Nov. 13, 2020 Reply at 2 & n.9 (citing *Alliance for Cannabis Therapeutics v. DEA*, 930 F.2d 936, 940 (D.C. Cir. 1991); *Nuvio Corp. v. FCC*, 473 F.3d 302, 303 (D.C. Cir. 2006); *Natural Resources Defense Council, Inc. v. Train*, 510 F.2d 692, 713 (D.C. Cir. 1974)). This is not a situation where the Commission seeks to compel compliance with an impossibility. Rather, to the extent providers are unable to meet the April 2021 deadline, that inability is largely a result of the providers' own failure to take appropriate steps to prepare for complying with a forthcoming deadline.

¹¹⁶ CTIA Petition at 13; see also T-Mobile Nov. 13, 2020 Reply at 10-13 (asserting that the providers' OS-based approach is superior).

¹¹⁷ CTIA Petition at 12; see also Letter from Megan Anne Stull, Counsel, Google LLC, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114, at 2 (filed Nov. 3, 2020) ("Google urges the Commission once again to consider whether gradual implementation of vertical location benchmarks would 'supply first responders with usable vertical location data sooner, and with more useful location information in the long run.'" (citation omitted)).

¹¹⁸ CTIA Petition at 13.

¹¹⁹ See *Sixth Report and Order*, 35 FCC Rcd at 7764-65, paras. 27-28.

¹²⁰ *Sixth Report and Order*, 35 FCC Rcd at 7765-68, paras. 29-33.

April 2021 or even by April 2023 in any market, but would delay compliance in all markets until 2025.”¹²¹ The Commission also noted that the approach in our rules of requiring deployment of z-axis technology initially in the top 50 markets prioritizes vertical location information in the areas where there are more multi-story buildings and the need for this information is greatest.¹²² Further, the Commission concluded that allowing CMRS providers to provide vertical location that is significantly less accurate could discourage first responders from relying on it.¹²³ In addition, the Commission agreed with public safety commenters that if CMRS providers intend to use a 911 location technology still under development, they should improve that technology to meet the 3-meter standard and the existing deadlines rather than the other way around, particularly when other solutions that meet the rules are technically feasible.¹²⁴ In their oppositions to the CTIA Petition, public safety entities continue vehemently to oppose any change to the z-axis standard or the timelines in the rules.¹²⁵ Rather than “unreasonably exclud[ing] consideration of alternatives” as CTIA alleges,¹²⁶ the Commission fully considered the providers’ and CTIA’s OS-based proposals and explained its reasons for rejecting their delayed timeline.¹²⁷

40. *Rejection of the providers’ alternative was consistent with FCC precedent.* CTIA also asserts that the Commission’s rejection of the providers’ alternative was inconsistent with FCC precedent, which requires “phasing-in new location accuracy solutions over time.”¹²⁸ CTIA notes that the Commission in the *Fourth Report and Order* adopted an initial E911 horizontal location accuracy

¹²¹ *Sixth Report and Order*, 35 FCC Rcd at 7765, para. 29.

¹²² *Sixth Report and Order*, 35 FCC Rcd at 7766-67, para. 31.

¹²³ *Sixth Report and Order*, 35 FCC Rcd at 7765-66, para. 30.

¹²⁴ *Sixth Report and Order*, 35 FCC Rcd at 7765-66, para. 30.

¹²⁵ See, e.g., APCO et al. Nov. 2, 2020 Joint Response at 1 (stating that “[o]ur organizations are strongly opposed to any delay to the location accuracy benchmarks”); NSA October 30, 2020 Comments at 4 (stating that NSA strongly opposes the CTIA Petition and that “[g]iven the tremendous lifesaving benefits that accurate vertical location information will provide to public safety, any additional delay would be unwarranted and would be exceedingly harmful to our members and the communities that they serve”); NPSTC Nov. 2, 2020 Opposition at 5-6 (stating that “the Commission should reject out of hand any suggestion that the postponement of the Stage Zb test bed could warrant an extension of the April 2021 deadline”); NASEMSO Oct. 30, 2020 Opposition at 3-4 (asserting that more than six years after acknowledging that three meter accuracy was already attainable, the Commission must enforce its rules by requiring wireless carriers to implement a z-axis compliant solution in the 25 largest cities by the April 2021 deadline); IAFC et al. Nov. 2, 2020 Opposition at 5 (suggesting that the Commission fine CMRS providers that are unable to meet the April 2021 deadline, “with the proceeds going to local crime victims funds and burn foundations to help those of the public who suffer the most by this delay”); IAFF Nov. 3, 2020 Opposition at 6 (advocating that the Commission should deny CTIA’s “business as usual” approach to seeking further delay in the implementation of these requirements); BRETSA Nov. 3, 2020 Opposition at 2 (opposing a delay and asking “[h]ow many people have perished or suffered worse outcomes due to the delay in implementation of NextNav’s Z-axis solution since NextNav first developed and demonstrated it”); NENA Nov. 13, 2020 Reply at 2 (stating that “[w]e agree with the chorus of public safety and industry commenters who point out CTIA’s poorly timed, already-refuted arguments against the Commission’s unanimously approved vertical location metric”).

¹²⁶ CTIA Petition at 13.

¹²⁷ For the same reasons, we decline AT&T’s suggestion that we extend the April 2021 deadline and revisit the remaining deadlines in July of 2022. AT&T Nov. 13, 2020 Reply Comments at 4-5. In the *Sixth Report and Order*, the Commission concluded that it was premature to adopt new requirements or deadlines with respect to tightening the 3-meter metric, enhancing the testing process, or requiring floor level identification, and directed the Public Safety and Homeland Security Bureau to evaluate the state of vertical location technology in July 2022. *Sixth Report and Order*, 35 FCC Rcd at 7780-83, paras. 67-71. The evaluation in 2022 is intended to focus on strengthening vertical location accuracy, not weakening it by dispensing with the first deployment deadline as AT&T suggests.

¹²⁸ CTIA Petition at 13.

benchmark of 40% of calls, rising to 50% after three years.¹²⁹ CTIA asserts that “[t]he Commission adopted this rule in the Fourth R&O with no suggestion that a 40 percent ‘reliability’ standard would be insufficient as an initial phase. However, the Sixth R&O inexplicably claims that a benchmark of 50 percent of calls for vertical location information would be inadequate and would ‘lead the public safety community to simply ignore z-axis information over the longer term.’”¹³⁰ We disagree with this argument for several reasons. First, the Commission established the 2021 and 2023 deadlines and z-axis metric in 2015 and 2019, respectively. CTIA’s argument that the Commission departed from precedent represents another attempt to invalidate the z-axis metric adopted in 2019 in favor of a less stringent metric specific to the mobile-OS framework. Second, the z-axis deadlines are precisely what CTIA claims they should be—a phased approach. Providers choosing to deploy z-axis technology must do so first in the top 25 CMAs and then, two years later, in the top 50 CMAs.¹³¹ Non-nationwide providers have the same phased deployment schedule, but with an additional year to comply with each deadline.¹³² Third, far from constituting a departure from precedent, this approach mirrors the deadlines for horizontal (x, y) location accuracy, which afforded providers six years from the effective date of adoption of the rules to meet the relevant accuracy metric for 80% of all wireless calls.¹³³ CMRS providers have the same six-year period to implement coordinate-based vertical location solutions capable of meeting the z-axis metric for 80% of wireless calls. CTIA also ignores the fact that this phased, market-based approach for z-axis compliance is directly based on the approach the nationwide providers agreed upon and submitted to the Commission in the 2015 Amended Roadmap.¹³⁴

41. *The Commission reasonably relied on the confidence and uncertainty (C/U) standards in the rules.* CTIA also argues that the *Sixth Report and Order* did not sufficiently explain why public safety professionals cannot also rely on uncertainty information for vertical location information as benchmarks phase in over time under the mobile OS-based framework.¹³⁵ Our rules require CMRS providers to report vertical confidence and uncertainty data using a confidence level of 90%, which ensures that location data are consistently reliable.¹³⁶ CTIA apparently is suggesting that the Commission should instead have required first responders to make do with location information based on reduced confidence levels while mobile OS-based solutions continue to develop. We disagree. As the Commission noted in the *Sixth Report and Order*, public safety commenters stressed the importance of receiving accurate and reliable information in emergency dispatch situations, when time is of the essence.¹³⁷ The Commission also concluded that providing unreliable z-axis information to PSAPs “could waste precious minutes while first responders search in vain the wrong floors of a building—and

¹²⁹ CTIA Petition at 13 & n.45 (citing *Fourth Report and Order*, 30 FCC Rcd at 1261, para. 6).

¹³⁰ CTIA Petition at 13-14 (citing *Sixth Report and Order*, 35 FCC Rcd at 7765-66, para. 30).

¹³¹ See 47 CFR § 9.10(i)(2)(ii)(C)-(D).

¹³² See 47 CFR § 9.10(i)(2)(ii)(F).

¹³³ See 47 CFR § 9.10(i)(2)(i)(A)(4), 9.10(i)(2)(i)(B)(4).

¹³⁴ See, e.g., Amended Roadmap Cover Letter at 2, 4 (describing phased approach for deploying dispatchable location and z-axis technology in the most populous CMAs).

¹³⁵ CTIA Petition at 14.

¹³⁶ 47 CFR § 9.10(j)(1); see also *Sixth Report and Order*, 35 FCC Rcd at 7777, para. 59 & n.166 (noting that confidence and uncertainty data reflect the degree of certainty that a 911 caller is within a specified radius of the location provided by the CMRS provider).

¹³⁷ *Sixth Report and Order*, 35 FCC Rcd at 7765-66, para. 30 & n.87 (quoting Letter from Jonathan F. Thompson, Executive Director and CEO, NSA, to Ajit Pai, Chairman, FCC, et al., PS Docket No. 07-114, at 2 (filed June 25, 2020)). In its opposition to CTIA’s Petition, NSA again confirms that the CMRS providers’ alternative, under which vertical location information may not be accurate within three meters for as many as 50% of calls, would not be useful to public safety. NSA Oct. 30, 2020 Comments at 1-2.

ultimately lead the public safety community to simply ignore z-axis information over the longer term.”¹³⁸ We continue to believe that vertical location information that is less reliable, for instance because it reflects a reduced confidence level, will not meet the needs of first responders, and we decline to alter the timing and reliability requirements in the rules as CTIA suggests.¹³⁹

42. *The reference point benchmark is reasonable, and the demise of the NEAD does not require changing it.* APCO largely disagrees with the policy judgments underlying the Commission’s decisions, which, in light of the extensive record in this proceeding, remain reasonable. APCO advocates against allowing CMRS providers “to comply with the dispatchable location option by counting reference points in ‘any database.’”¹⁴⁰ According to APCO, “[t]his approach presumes that carriers would provide dispatchable location only by using solutions like the abandoned NEAD-based approach, and it creates confusion over whether reference points in crowd-sourced databases such as those maintained by Apple and Google—which have not been demonstrated as capable of providing dispatchable locations—could be used to satisfy the requirement.”¹⁴¹ “Furthermore, even for dispatchable location solutions that are based upon use of reference points that reside in a database, this approach does not go far enough.”¹⁴² APCO claims that this approach permits CMRS providers “to demonstrate compliance with a raw number of reference points leveraged by a solution regardless of whether the solution can accurately estimate a dispatchable location or, more importantly, whether a carrier delivers dispatchable location information with 9-1-1 calls.”¹⁴³

43. The crux of APCO’s argument for adopting a call percentage threshold for dispatchable location appears to be that the “any database” approach lacks sufficient public safety oversight procedures to ensure that relying on non-NEAD reference points will result in CMRS providers delivering accurate dispatchable location information with 911 calls.¹⁴⁴ This argument is unpersuasive for several reasons. Any CMRS provider opting to deploy dispatchable location will still be responsible for ensuring that our vertical location accuracy requirements are met, whether the database is selectively controlled or crowdsourced. The definition of dispatchable location requires that “[t]he street address of the calling party must be validated and, to the extent possible, corroborated against other location information prior to delivery of dispatchable location information by the CMRS provider to the PSAP.”¹⁴⁵ In amending the rules to allow alternatives to the NEAD, the Commission made clear that any carrier using a non-NEAD database to support dispatchable location must meet the same technical and functional requirements that would have applied to the NEAD whether the database is selectively controlled or crowdsourced.¹⁴⁶

¹³⁸ *Sixth Report and Order*, 35 FCC Rcd at 7765-66, para. 30.

¹³⁹ The Texas 911 Entities assert that if CMRS providers will be unable to deliver 911 calls with HAE information within 3 meters by April 3, 2021, then “it is in the public interest for the Commission to communicate updated information reasonably soon to those PSAP areas within the top 25 CMAs that may be seeking to take on the difficult task of trying to translate HAE into meaningful vertical location information at their PSAPs by April 3, 2021.” Comments of the Texas 911 Entities on the CTIA Petition for Reconsideration, PS Docket No. 07-114, at 2 (filed Nov. 2, 2020). As noted above, we decline to revise our z-axis timelines.

¹⁴⁰ APCO Petition at 2.

¹⁴¹ APCO Petition at 2.

¹⁴² APCO Petition at 2-3.

¹⁴³ APCO Petition at 3.

¹⁴⁴ APCO Petition at 2-3 (alleging that use of reference points was acceptable for NEAD, due to public safety’s guaranteed oversight role in NEAD, but not for other databases); *see also* APCO et al. Nov. 2, 2020 Joint Response at 2-3; NENA Nov. 13, 2020 Reply at 9 (stating that “any requirements that apply to such technologies are not the same requirements that applied to NEAD; deployment of NEAD assumed active participation from internet service providers (ISPs), public safety, and other parties to oversee provision of a discrete database”).

¹⁴⁵ 47 CFR § 9.10(i)(1)(i).

¹⁴⁶ *Sixth Report and Order*, 35 FCC Rcd at 7773, para. 49 & n.136.

There does not appear to be any confusion from CTIA or other service providers on this point in the record of this proceeding.¹⁴⁷

44. Moreover, the alternative proposed by APCO—a compliance standard based on call percentages—would not remediate the problems it has cited. APCO is concerned that it no longer has the same ability to participate in new databases as it would have with the NEAD,¹⁴⁸ but adopting a call percentage threshold would not result in public safety organizations having any direct oversight of those dispatchable location solutions. In addition, APCO has presented no rationale explaining why starting with “conservative percentages”¹⁴⁹ benchmarks would result in more calls completed with dispatchable location information than would result from our rules, which specify a precise number of reference points *and require* dispatchable location with as many calls as technological feasibility and cost effectiveness permit.

45. APCO argues that basing dispatchable location requirements on the number of database reference points will lead to dispatchable location being provided for very few calls.¹⁵⁰ Yet APCO proposes to establish an arbitrary percentage-of-calls threshold without providing any showing of technical feasibility or cost-effectiveness.¹⁵¹ In fact, there is no basis for such an approach, because it is impossible to predict how many 911 calls will originate in environments where dispatchable location is feasible (e.g., in indoor as opposed to outdoor locations).

46. *The “technically feasible and cost-effective” rule is reasonable.* In the *Sixth Report and Order*, the Commission adopted a requirement for dispatchable location by requiring that carriers provide dispatchable location with wireless E911 calls when it is technically feasible and cost effective to do so. APCO argues that the “technical feasibility” standard adopted in the *Sixth Report and Order* is too weak to encourage dispatchable location deployment and should be replaced with its proposed percentage-of-calls standard. APCO argues that the Commission’s reasoning for declining to adopt APCO’s proposal “implies that the 9-1-1 location rules should not be used to require carriers to invest in new solutions and overlooks the Commission’s recognition that dispatchable location is being provided for some calls already and that solutions are likely to become increasingly available.”¹⁵² APCO submits that “[t]he

¹⁴⁷ See, e.g., CTIA Reply at 8-9 (stating that the Commission, “in the face of NEAD’s discontinuance, maintained requirements for providers to deliver dispatchable location to PSAPs, while providing flexibility to utilize various technological solutions to do so”); T-Mobile Nov. 13, 2020 Reply at 12 n.48 (stating that “[w]ith the NEAD no longer in commission, T-Mobile assures APCO that the providers have no intention of attempting compliance using a dispatchable location database ‘regardless of whether the solution can accurately estimate a dispatchable location,’” and citing APCO et al. Joint Response at 2-3).

¹⁴⁸ APCO Petition at 3.

¹⁴⁹ APCO Petition at 4.

¹⁵⁰ See, e.g., APCO Petition at 3 (alleging the reference point benchmark allows compliance regardless of “whether a carrier delivers dispatchable location information with 9-1-1- calls”).

¹⁵¹ See generally NENA Nov. 13, 2020 Reply at 9 (agreeing that a number of reference points in a database is not an ideal metric by which to judge a dispatchable location solution’s ability to function properly, but that “absent significant advances in the calculation of reliable, accurate dispatchable location, we are unable to propose a technically viable alternative scheme”); CTIA Reply at 9 (noting that in the *Sixth Report and Order*, “the Commission declined to adopt minimum percentage thresholds for dispatchable location, finding that ‘such particularized requirements that go beyond what is technically feasible and cost-effective are not warranted given that development of dispatchable location solutions is still in early stages,’” and stating that “[t]he same holds true today”) (citation omitted); T-Mobile Nov. 13, 2020 Reply at 12 n.48 (stating that “[t]here is no basis for prematurely adopting a ‘minimum percentage of 9-1-1 calls that must be delivered with dispatchable location information,’” and that, instead, “the Commission should encourage flexibility and innovation with respect to dispatchable location and decline to set deployment standards before a solution is ready for evaluation”) (citation omitted).

¹⁵² APCO Petition at 3. APCO asserts that “the Commission’s reasoning is thus doubly incongruous with its decision to reject concerns that deploying z-axis technology nationwide is not technically feasible, noting that ‘at

(continued....)

concern that the minimum percentages might exceed what's technically feasible could easily be addressed by starting with conservative percentages based on reasonable estimates of what's feasible."¹⁵³ APCO also claims that the Commission did not explain the meaning of "technically feasible and cost-effective," despite concerns over ambiguity, and that this requirement therefore fails to provide incentives for CMRS providers to build on existing progress and continue to invest in dispatchable location solutions.¹⁵⁴ Finally, APCO argues that "[e]stablishing a minimum percentage threshold for dispatchable location would eliminate a significant loophole in the rules and be consistent with the Commission's horizontal accuracy requirements (which are based on providing compliant location information for a certain percentage of calls)."¹⁵⁵

47. We disagree. As noted above, APCO's proposed percentage-of-calls approach is arbitrary and lacks any showing of technical feasibility or cost-effectiveness. By contrast, the Commission's requirement for dispatchable location is more likely to lead to increased use of dispatchable location over time, precisely because the scope of the requirement will expand as technology improves and cost-effective solutions become increasingly available. This is the same requirement that we applied to wireline, VoIP, and other services in the *Kari's Law/RAY BAUM'S Act Report and Order*, consistent with our mandate to promote regulatory parity among service providers.¹⁵⁶

48. The Commission also addressed APCO's concern about the enforceability of the "technically feasible and cost-effective" standard in the *Sixth Report and Order*, explaining that parties may file a complaint with the Commission should any CMRS provider fail to provide dispatchable location when doing so is technically feasible, which will require the CMRS provider to either

least [it] will be in the near future." APCO Petition at 3 & n.12 (quoting *Sixth Report and Order*, 35 FCC Rcd at 7762, para. 23 ("[D]eploying z-axis technology on a nationwide basis is technically feasible—or at least will be in the near future"); also citing *id.* at 7760, para. 19 n.52 (rejecting arguments from CMRS providers that no solution has been demonstrated to meet the z-axis metric in all morphologies); *id.* at 7775, para. 51 ("Dispatchable location is already being provided for some number of 911 calls, and dispatchable location solutions are likely to become increasingly available with the rollout of 5G networks and improved indoor mapping of large buildings and other structures.")). Here, APCO appears to be conflating the Commission's discussion regarding the expected nationwide availability of z-axis solutions with its reasoning for encouraging the development of dispatchable location solutions beyond the NEAD. Rather than being internally inconsistent, in the *Sixth Report and Order*, the Commission afforded CMRS providers greater flexibility under either the dispatchable location or z-axis technology deployment option. In addition, our vertical location accuracy rules for z-axis compliance do start with conservative minimum percentages based on Stage Z testing, while our 2022 dispatchable location accuracy rule requires CMRS providers to provide vertical dispatchable location *with all calls* as soon as technically feasible given the state of emerging dispatchable location solutions and the demise of the NEAD.

¹⁵³ APCO Petition at 4.

¹⁵⁴ APCO Petition at 4.

¹⁵⁵ APCO Petition at 4. In a footnote, APCO states that it previously "explained the danger of the rules requiring *deployment* of technology rather than the *delivery* of location information" and that "[t]he Order did not reflect an understanding of this concern." APCO Petition at 4 n.14. APCO ignores that dispatchable location technology has not progressed as envisioned in the *Fourth Report and Order*. In light of the demise of the NEAD and the Commission's approach in the *Kari's Law/RAY BAUM'S Act* proceeding, our rules require that by January 6, 2022, all CMRS providers must "provide dispatchable location with wireless E911 calls if it is technically feasible for them to do so." 47 CFR § 9.10(i)(2)(ii)(G). The rules adopted in the *Kari's Law/RAY BAUM'S Act* proceeding do not impose percentage-of-call requirements and do not specify any method of providing dispatchable location.

¹⁵⁶ See *Sixth Report and Order*, 35 FCC Rcd at 7775, para. 51 & n.149 (citing and quoting RAY BAUM'S Act § 506(a), "directing the Commission to consider adopting rules 'to ensure that the dispatchable location is conveyed with a 9-1-1 call, regardless of the technological platform used'"); *Sixth Report and Order*, 35 FCC Rcd at 7795, Appx. B ("These actions build upon . . . Congress' objective in Section 506 of RAY BAUM'S Act to promote regulatory parity in the provisioning of dispatchable location.").

demonstrate the solution is not technically feasible or start providing it.¹⁵⁷ Here, “technically feasible” necessarily includes cost-effectiveness, as any dispatchable location solution which is merely technically *possible* but also cost prohibitive is not feasible. Furthermore, the Commission has already committed to monitoring progress towards deployable dispatchable location technologies and will exercise future oversight if and as necessary.¹⁵⁸

IV. PROCEDURAL MATTERS

49. *Paperwork Reduction Act Analysis.* This Order on Reconsideration does not contain any new or modified information collection requirements subject to the Paperwork Reduction Act of 1995, Public Law 104-13. Thus, it does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. § 3506(c)(4).

50. *Congressional Review Act.* The Commission will not send a copy of this Order on Reconsideration to Congress and the Government Accountability Office pursuant to the Congressional Review Act, see 5 U.S.C. § 801(a)(1)(A), because no rule was adopted or amended.

51. *Regulatory Flexibility Act Analysis.* In the *Sixth Report and Order*, the Commission provided a Final Regulatory Flexibility Analysis pursuant to the Regulatory Flexibility Act of 1980, as amended (RFA).¹⁵⁹ We received no petitions for reconsideration of that Final Regulatory Flexibility Analysis. In this present Order on Reconsideration, the Commission promulgates no additional final rules. Our present action is, therefore, not a RFA matter.

V. ORDERING CLAUSES

52. Accordingly, IT IS ORDERED that the Petition for Reconsideration filed on September 28, 2020, by CTIA IS DISMISSED and, alternatively and independently, IS DENIED.

53. IT IS FURTHER ORDERED that the Petition for Reconsideration filed on September 23, 2020, by the Association of Public-Safety Communications Officials-International, Inc. IS DISMISSED and, alternatively and independently, IS DENIED.

54. IT IS FURTHER ORDERED that this Order on Reconsideration SHALL BE EFFECTIVE thirty days after publication in the Federal Register.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

¹⁵⁷ *Sixth Report and Order*, 35 FCC Rcd at 7775-76, para. 52 & n.151 (citing the *Kari's Law/RAY BAUM'S Act Report and Order* for the proposition that “if the Commission receives a complaint or petition alleging that a provider is not providing dispatchable location and the provider asserts that doing so is not technically feasible or cost-effective, the provider must show that its assertion has an objective and reasonable basis in light of the state of technology at the time the assertion is made”).

¹⁵⁸ *See, e.g., Sixth Report and Order*, 35 FCC Rcd at 7782-83, para. 71 (“We direct the Public Safety and Homeland Security Bureau to evaluate the state of vertical location technology in July 2022 and to report to the Commission the results of that evaluation. We also direct the Public Safety and Homeland Security Bureau to consider whether to refer these technical issues to an appropriate federal advisory committee, such as CSRIC, and the appropriate timetables for an advisory committee to submit recommendations.”) (footnote omitted).

¹⁵⁹ *Sixth Report and Order*, 35 FCC Rcd at 7795, Appx. B.