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

In the Matter of)
Promoting the Development of Positioning, Navigation, and Timing Technologies and Solutions) WT 25-110)

COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

I. Introduction

The Telecommunications Industry Association ("TIA") appreciates the opportunity to provide input regarding the Federal Communications Commission's ("FCC" or "the Commission") Notice of Inquiry ("NOI") seeking input on ways to strengthen the Positioning, Navigation, and Timing ("PNT") data.¹ TIA represents over 400 manufacturers and suppliers of telecommunications equipment and services. TIA members design, produce, market, and manage the information communications technology ("ICT") equipment and services that put PNT technologies into the hands of civilians, first responders, and military users alike. To that end, TIA shares the Commission's goals in building a "resilient and secure PNT system of systems."²

Delivery of PNT information touches nearly every American daily – often transparently. Communications networks use PNT timing signals to maintain synchronization, enabling throughput of voice and data services across multiple carrier networks; financial systems use

¹ Notice of Inquiry, *Promoting the Development of Positioning, Navigation, and Timing Technologies and Solutions*, WT Doc. No. 25-110 (Mar. 28, 2025) ("NOI").

² NOI at \P 3.

PNT to ensure accurate accounting of transactions; and, of course, Americans reaching out to our nation's first responders are often located using GPS positioning. If receipt of PNT data is disrupted, communications networks will eventually lose synchronization with other networks and not function properly, our financial systems could be disrupted, and the crucial link to emergency services on which we rely on could fail when we need them most. These scenarios raise significant concerns for national security, public safety, and economic welfare.

Fortunately, the NOI describes several alternative PNT solutions that are now, or will soon be, readily available for commercial applications. Some of these technologies appear well suited to complement and augment GPS in order to improve precision and accuracy and help ensure a continuity of service whenever GPS signals may not be present. While the continued evolution of the GPS itself includes capabilities that minimize the impacts of solar flares, jamming, spoofing, and other related disruptions, it is both timely and proper for the FCC to conduct this inquiry to examine what steps it can take to support the introduction of such technologies and lower the nation's reliance on GPS alone.

That said, the FCC must be careful to balance other public interest considerations that fall within its jurisdiction. For example, the potential PNT solution proposed by NextNav Inc. ("NextNav") that is discussed in the NOI³ has drawn significant and broad opposition from a diverse cross-section of the economy as having a profound negative impact on other uses in the 902 – 928 MHz band ("Lower 900 MHz") including those that provide input to public safety and national security interests. While promoting the development of new, additional PNT technologies to augment GPS resiliency is clearly in the public interest, the FCC need not do so at the expense of existing spectrum users. As the Commission proceeds, it must consider the

³ NOI at ¶ 29.

impact that proposals such as NextNav's would have on the other broad uses of the spectrum. Of all the options considered in the NOI, only the NextNav solution raises spectrum compatibility and interference to other systems as key considerations in its implementation. The FCC should not move forward with the NextNav approach if doing so would negatively impact existing Lower 900 MHz users and devices. Finally, the Commission should also examine its existing rules on complements or supplements to GPS, including reception of signals from foreign Global Navigation Satellite System ("GNSS") constellations. Given the importance of PNT to daily life, the Commission should ensure that its regulations do not impede the accrual of substantial public interest benefits from positioning accuracy.

II. The Lower 900 MHz Band is an FCC Success Story.

The Lower 900 MHz Band is an FCC success story, hosting a wide variety of uses,

including a multitude of unlicensed devices authorized pursuant to Rule Part 15 of the Commission's rules.⁴ The success of unlicensed devices in the Lower 900 MHz band did not occur by happenstance – it is a direct result of the FCC's decision to protect unlicensed devices from interference caused by licensed services, such as NextNav, that operate in the same band on a shared basis.⁵

⁴ The FCC regulates non-Federal government use of the Lower 900 MHz band, but the spectrum is allocated for primary use by Federal Government users for radiolocation services. The U.S. military relies on this band for critical operations, including radar tracking for drones, aircraft, and missile flight testing, as well as for shipborne air search, surveillance systems, and short-range communications. All non-Federal government use of the band – both licensed and unlicensed – must not interfere with primary Federal operations.

⁵ See 47 C.F.R. § 90.353(d). In pertinent part, this rule states that "multilateration LMS licenses will be conditioned upon the licensee's ability to demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to 47 CFR part 15 devices." Adopted 30 years ago, this policy was implemented to "ensure that the coexistence of the various services in the band is as successful as possible." Its success in accomplishing that goal is unquestioned yet NextNav proposes its removal solely for self-serving purposes. In the matter of Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, Report and Order, PR Docket No. 93-61, re. Feb. 6, 1995, at ¶ 82.

Providing unlicensed devices protection from licensed services in this band was, and still is, a novel approach to spectrum management, which has enabled decades of American innovation and investment to thrive in a band once considered extremely challenging. This band is far from underutilized, it is currently home to "hundreds of millions" of unlicensed devices, many of which are used to facilitate the ability of the public and enterprise organizations to detect and report security incidents to public safety and first responders.⁶ The band is also used for hundreds of thousands licensed "toll-tag" readers and other types of location devices. As detailed in comments to the NextNav Petition by a broad coalition of industry participants brought together by the U.S. Chamber of Commerce, the Lower 900 MHz band is a preferred spectrum band for a wide variety of innovative devices and technologies serving the following sectors:⁷

• *Municipal Infrastructure*: Municipal systems, including traffic control, street lighting, weather monitors, and flood warning systems.

• *Critical Infrastructure*: Utilities use the 900 MHz band to remotely monitor and manage their power, gas, and water distribution networks.

• *Railroad Operations and Safety*: Automatic Equipment Identification ("AEI") enables accurate and efficient tracking of railcars and equipment throughout the network relying on 900 MHz frequencies. In addition to the AEI network, the rail industry relies on unlicensed 900 MHz spectrum for connecting opposing ends of signal interlockings, remote drawbridge operation over waterways, traffic control, sensors, and other communications devices.

• *Highway Infrastructure and Tolling*: Electronic tolling systems, such as E-Z Pass and other similar toll collection systems, rely on licensed spectrum allotments in the Lower 900 MHz band.

• *Smart Home and Building Devices*: Devices include thermostats to smart locks to security systems.

• *Security Cameras and Systems*: The 900 MHz band is vital for millions of security cameras, including popular models used in homes, small businesses, large businesses, and critical infrastructure.

⁶ Comments of Motorola Solutions, WT Docket No. 24-240, Sept. 20, 2024, at 2.

⁷ See U.S. Chamber of Comments *et al*, Comments, WT Docket 24-240, Sept. 5, 2024, at 2.

• *Retail, Manufacturing, and Supply Chain Operations*: Building control systems, tank, and leak monitoring systems, inventory controls systems, fleet management and asset tracking tools, price scanners, and other systems deployed in major retailers, suppliers, manufacturers, and small businesses across the United States.

• *Agriculture*: The U.S. smart agriculture sector's innovative solutions for connecting the modern farm's Internet of Things devices and equipment leverage the reliability of the 900 MHz band to keep our farms connected.

Reallocating and reorganizing the band to accommodate NextNav's plans will not only chill continued investment and innovation. The introduction of a new source of radio interference has the potential to degrade performance of existing devices and cause millions of consumers, businesses and governments agencies to abandon existing devices. As the Commission has made clear in the NOI, many alternative systems exist that could be used to potentially increase the resiliency of the U.S. PNT ecosystem. Given the robust record of alternatives, the Commission should not take additional action on NextNav's Petition until it has fully considered the options proposed in the NOI to augment our national PNT systems without negatively impacting the millions of devices in the Lower 900 MHz band.

III. There are Better PNT Options than NextNav's Proposed Use of the Lower 900 MHz band.

In addition to NextNav's proposed solution, the NOI provides descriptions of a number of PNT technologies now in existence or in development that can possibly serve as a complement or alternative to GPS.⁸ Further, as is with NextNav's proposed implementation, TIA believes that the FCC should not mandate any solutions raised in the NOI, regardless of their potential to upset existing spectrum allocations. Instead, consumers and industry should determine through market forces the best way to complementary or alternative sources for PNT.

⁸ NOI at ¶ 16.

Space-based Solutions:

• *Wide Area Augmentation System (WAAS)* is a GPS augmentation technology developed for civil aviation that uses GPS receivers located on the ground, removes errors, and then transmitting that information back to geostationary (GEO) communications satellites for retransmission to aviation receivers.

• *Global Navigation Satellite Systems (GNSS)* deployed by other countries including Galileo, GLONASS, and BeiDou that operate in the same frequency bands as GPS.

• *Low-Earth Orbiting (LEO) satellite constellations* such as SpaceX and Amazon Kuiper are capable of providing PNT solutions. Iridium's Satellite Time and Location (STL) service broadcasts timing and location signals through Iridium's LEO satellites' paging channel. Trustpoint is planning a commercial LEO GNSS operating in the C-band.

Terrestrial-Based Solutions:

• *Broadcast Positioning System* uses features of ATSC 3.0 to deliver precise timing information within television broadcast signals.

• *eLoran* is an enhanced version of the original Loran solution that has been retired. eLoran uses frequencies in the HF spectrum in locations around the globe and could be expanded into the U.S.

• *Mobile Broadband Networks* enable hybrid positioning methods that utilize measurements from 5G base stations in combination with GNSS to significantly improve positioning accuracy in urban macro environments.

Within the NOI's list, only NextNav's proposal requires allocation of new spectrum with

potential to generate harmful interference to existing spectrum uses. Furthermore, other

alternatives are already available for use, such as the Galileo GNSS constellation; LEO satellite

networks operated by SpaceX, Iridium and, coming soon, Amazon; and terrestrial solutions

including 5G networks and the Broadcast Positioning System.⁹ These solutions offer a nearer

term path to complementary GPS solutions without affecting other spectrum users.

⁹ The FCC has recently placed on public notice a petition for rulemaking to mandate the transition to ATSC 3.0 by 2030 for all full-power television broadcast stations. *See* Public Notice, DA 25-314, released April 7, 2025.

It is very unlikely that NextNav's proposal, if adopted, would help sufficiently lower the country's reliance on GPS. The NextNav Petition raises a number of complicated and challenging issues for the FCC to consider – both policy and technical in nature. For instance, the FCC would need to weigh whether the public interest benefits of enabling a complementary PNT solution in the band are greater than the public interest benefits offered by the incumbents including a large number of devices focused on security and public safety. Part of that analysis is likely to be decided on technical compatibility studies, which will be challenging to complete since the Lower 900 MHz band is not supported by any 3GPP standards for LTE or 5G – and the process for doing so has yet to be initiated. The NextNav Petition also introduces a series of application and licensing issues as NextNav is asking for approval to acquire licenses that have previously been rescinded as a result of bankruptcy proceedings.¹⁰ NextNav is also asking for the FCC to provide it with increased bandwidth and geographical coverage area than what it now has without the ability of others to file competing applications. Finally, should NextNav succeed in getting everything it asked for, it would then need to find partners willing to build a nationwide 5G network in a one-off band that lacks international compatibility or an existing chipset. The long history of and recent proposed assignment of 800 MHz broadband licenses from T-Mobile to Grain Management that are well suited for 5G deployment suggests this may not be an easy task.¹¹

NextNav technology may offer a PNT solution but it is not the only such solution nor is it best situated to achieve the goals of this proceeding. In comments submitted in response to the NextNav Petition, the Resilient Navigation and Timing Foundation ("RNTF") found many of

¹⁰ See e.g., Comments of the Enterprise Wireless Alliance, WT Docket No. 24-240, Sept. 5, 2024, at 4-5.

¹¹ See e.g., T-Mobile tees up 800 MHz sale to Grain, with upshots for utilities, Fierce Network, March 21, 2025, available at https://www.fierce-network.com/wireless/t-mobile-tees-800-mhz-sale-grain-upshots-utilities.

NextNav's claims to be overstated. The RNTF stated that NextNav's assertion that its version of terrestrial PNT is the "only" viable solution to be "incorrect."¹² RTNF pointed to other terrestrial offerings such as eLoran, the Broadcasting Positioning System, and solutions provided by Locata and PhasorLab. RTNF continued to say that in "each of these cases, companies have designed, deployed, and provided TPNT without requiring new or changed spectrum allocation rules, or creating incompatibility with current incumbent operations."¹³ Given all its infirmities, the FCC should not elevate NextNav's proposed technology as a leading candidate to help improve the U.S. PNT situation. The FCC should not give further consideration to NextNav's proposal to reconfigure the Lower 900 MHz band, and should give the industry latitude to determine which proposals raised in the NOI will most effectively serve as an alternate source for PNT.

IV. The FCC Should Revisit its Rules Regarding GNSS Constellations.

Finally, The FCC should revisit its rules concerning receipt of signals from foreign Global Navigation Satellite System ("GNSS") constellations. As the FCC acknowledges in this proceeding, accurate PNT information enables activities integral to modern daily life. Evidence already in the record of this proceeding explains that passive receipt of signals from foreign GNSS systems increases positioning accuracy and availability yields a host of public interest benefits.

As the Commission considers additional sources of PNT information, it should also ensure that its regulations reflect modern realities. The GNSS rules enacted decades ago do not reflect current technological use cases or form factors. Large satellite dishes — the earth stations of the 1970s — are simply not the same as smartphones that users carry with them in purses,

Ex parte presentation in WT Docket No. 24-240, Resilient Navigation and Timing Foundation, September 3, 2025.

¹³ *Id.* at 2.

pockets, and backpacks. Antiquated regulations could have a substantial negative effect on maintaining U.S. competitive leadership in satellite technologies, whether they be handsets or chipsets. In short, the FCC rules should promote, not impede, American leadership, including by allowing manufacturers to achieve global scale necessary to succeed. Given the benefits of receipt of these signals in enabling resiliency, redundancy, and accuracy across a host of industries vital to American success — and especially as the Commission continues to explore complements to PNT offered by GPS — the Commission should take a hard look at whether its rules concerning foreign GNSS are too restrictive or if they would benefit from clarification.

V. Conclusion.

TIA supports the Commission's efforts to promote resilient and complementary Positioning, Navigation, and Timing technologies. Multiple space and terrestrial PNT alternatives are available now or can be available soon that would not disrupt existing spectrum users. The Commission should focus on PNT alternatives that can be incorporated now or relatively soon, do not require new spectrum allocations, and do not negatively impact existing technologies and users in the Lower 900 MHz spectrum band. Finally, the Commission should examine whether its rules concerning foreign GNSS require modification to reflect current realities.

> By: <u>/s/ Colin Andrews</u> Colin Black Andrews Senior Director, Government Affairs

TELECOMMUNICATIONS INDUSTRY ASSOCIATION 1201 Wilson Boulevard, Floor 25 Arlington, VA 22204

April 28, 2025