

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

In the Matter of)	
)	
Petition for Rulemaking of NextNav Inc.)	
)	WT Docket No. 24-240
Enabling Next-Generation Terrestrial)	RM-11989
Positioning, Navigation, and Timing and)	
5G: A Plan for the Lower 900 MHz Band)	
(902-928 MHz))	

Opposition of ARRL, The National Association For Amateur Radio

ARRL, The National Association for Amateur Radio, also known as the American Radio Relay League, Incorporated (ARRL), submits this Opposition to the Petition for Rulemaking filed by NextNav Inc. (NextNav)¹ and response to the Public Notice thereon.²

Introduction and Summary

ARRL is Amateur Radio’s national organization and has represented the interests of Amateur Radio operators in Washington for over 100 years. The current rules governing the 902-928 MHz band were carefully crafted to protect the operations of incumbents while providing for increased use and more services to the public.³ Except for the Part 90 Location and Monitoring Service (LMS) licensees, the rules have led to a widespread array of wireless devices and equipment being made available. The several million Part 15 devices that used this spectrum

¹ NextNav Inc., Petition for Rulemaking, Enabling Next-generation Terrestrial Positioning, Navigation, and Timing and 5G: A Plan for the Lower 900 MHz Band (902-928 MHz) (filed April 16, 2024) (“Petition”); NextNav Inc., Letter from Robert Lantz, General Counsel, NextNav Inc., to Marlene H. Dortch, Secretary, FCC, titled “Rules supplement to NextNav Inc. petition for rulemaking” (filed June 7, 2024) (“supplement”).

² Wireless Telecommunications Bureau and Office of Engineering and Technology Seek Comment on NextNav Petition for Rulemaking, Public Notice, WT Docket No. 24-240, DA 24-776 (released Aug. 6, 2024).

³ See FCC, 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, 10 FCC Rcd 4695 at 4744-45, ¶ 99; and statements of four of the five voting Commissioners at 4762-4768 (1995) (“Part 90 Order”).

band in 1995 have ballooned in number to multiple billions of devices in 2024 to provide a long list of ever-expanding applications and functionalities to the American public.⁴ Federal Government Radiolocation radars and Part 18 Industrial, Scientific and Medical (ISM) equipment and devices continue to multiply. And amongst the intense competing signals in this band, Part 97 Amateur Radio operators successfully employ their technical knowledge and skill to find low noise spots sufficient to continue projects furthering the Service's growth and experimentation.

The 902-928 MHz Band is Heavily Used

Petitioner NextNav holds a substantial number of licenses and states that it expects to acquire most of the remaining similar licenses nationwide. These licenses were valued and auctioned for use in specific portions of the 902-928 MHz band for providing only the services defined and limited in the Commission's Location and Monitoring Service (LMS) rules. Against all evidence, NextNav incorrectly argues that the band is "underutilized" and therefore ripe for major restructuring. It would have the Commission remove most of the LMS license limitations and expand the licensed spectrum in order to permit provision of the same types services that are being provided in other spectrum bands, but only after those bands were specifically valued and auctioned for these types of services. NextNav does not explain why complementary positioning, navigation, and timing (PNG) functionality cannot be added by these other service providers.

While it appears that NextNav, its predecessors, and its intended future license transferors have not constructed many of the systems for which the licenses were auctioned decades ago, the suggestion that the band is under-utilized by others is demonstrably false.

⁴ See Consumer Technology Association, *Unlicensed Spectrum and the U.S. Economy: Quantifying the Market Size and Diversity of Unlicensed Devices* at p.13 (dated January, 2022).

The ARRL and hundreds of individual radio amateurs have filed comments in this proceeding opposing the request because, contrary to NextNav's assertions, the band is extremely crowded with millions of devices and transmitters in operation in multiple services, including the Amateur Service. Adoption of the proposal would result in either massive interference that would prevent proper operation or displacement to other bands. The difficulty is that there are no other bands known to be available, and in fact, some of the Amateur operations in this band are here because they were displaced when a portion of the 420 – 450 MHz band North of "Line A" was closed to the Amateur Service some years ago. Others were displaced from the same band when new Federal Government defense radars were initiated and continued Amateur secondary operations would have interfered with their operation.

The Amateur Radio Service uses of this band are important and even critical for some purposes, but reality also is that sometimes use by Radio Amateurs has been impaired or made impossible by there being so many other transmitters operating within the band. Amateurs employ this band when technically feasible, but not infrequently Amateurs have been unable to fit in a signal without causing interference to a higher-allocated service.

It therefore raises eyebrows when Radio Amateurs read NextNav's statements that the band is under-utilized. Our operators use the band when and where they can find space, but many report that there are so many signals already in the band that they have had to search out other less desirable frequencies or, in some cases, design and build highly directional antennas and special equipment to accomplish their purpose.

The comments already filed in this proceeding amply demonstrate the intense use being made of the spectrum in this band. In many instances millions of devices have been placed in service and continue to be manufactured with a *de facto* expectation of continuing to be able to

be sold and used within the existing environment. With some difficulty and challenges, everyone has carefully worked to avoid interference and to make the best of it in this overcrowded band.

Review of the 500+ comments already filed in this proceeding reveals that NextNav is pretty much alone in its opinion that this spectrum is underutilized and that spare spectrum exists within this band that can be restructured to accommodate new service without displacing existing incumbents. While spectrum space for services such as those proposed by NextNav very well may be beneficial for some purposes, this particular band is not capable of accommodating that need. This spectrum is more than fully occupied by an unprecedented array of unique and valuable devices and services already accommodated within its narrow confines.

NextNav's Proposal Inevitably Would Displace Incumbents From a Thriving if Overcrowded Band

The NextNav proposal, if adopted, would reconfigure the 902-928 MHz band and effectively replace the Location and Monitoring Service (LMS) with what appears to be a high-powered 5G-like flexible service with some ancillary location services included. This would require transmission powers orders of magnitude greater than those currently permitted, duty cycles substantially increased to the detriment of existing users, and elimination of the "safe harbor" from interference complaints that exists for certain classes of Part 97 Amateur Radio operations and Part 15 devices.

These changes inevitably would disrupt the careful balance adopted in the Commission's rules that have led to great success and innovation. No foundation is apparent for NextNav's suggestion that ways can be found to accommodate existing users. ARRL has studied the possibilities, and while always open to discussion and exploration of sharing strategies, no promising pathway forward has been discerned given the nature of the proposed changes and the

characteristics of Amateur operations that already too frequently cannot be accommodated in this band due to overcrowding.

Under NextNav's proposal, the much higher-powered transmitters would be ubiquitous and operating 24/7. The resulting interference would effectively exclude many of the current Amateur operations that are operating in the 902-928 MHz band.⁵

Radio Amateurs employ a Variety of Operations in the Band

When space can be found in this band, Amateurs employ it to establish wide-area voice and some television signal repeaters. Others are actively experimenting with digital mesh networks and associated control links. These networks are a testbed for digital design and experimentation, but also are available and used for back-up emergency communications purposes. Still others operate low power beacons for propagation research. Weak signal work – tuning and experimenting to communicate over the longest paths with the least power – also is popular and leads to improvements in equipment.

The benefits of continued Amateur operation in this band recognized by the Commission when the current rules were adopted are even more salient today. The Commission stated in its Report and Order:

The amateur service is used by technically inclined private citizens world-wide to engage in self-training, information exchange, and radio experimentation. It is at the forefront of communications technology and has been instrumental in the development of land mobile systems, hand held radios, and satellite communications. In times of disaster when normal communications are disrupted, amateur systems often alert the world to the disaster and provide assistance in relief operations. By the actions in this proceeding we

⁵ NextNav in its Petition at p.32 misleadingly states that in 2013 ARRL “opted not to file comments in the proceeding weighing whether [NextNav] could deploy M-LMS in 919.750-927.750 MHz....” The proposal that NextNav references was completely different in interference potential and its effect on Amateur operations. There is little in common between the two. The 2013 proposal cannot be equated with its current proposal in any way, including in scope, spectrum, and transmitter power.

seek to maximize the ability of Part 15 and amateur operations to coexist with the operation of LMS systems.⁶

“Safe Harbor” Protection of Specified Amateur Uses Should be Continued

The Commission recognized that this band already was over-crowded when the current rules were adopted and that the multiple compromises made in the new rules might not prevent interference situations to the extent desired. The interference concerns led the Commissioners to provide a “safe harbor” that extends some limited protection to Radio Amateur operations employing low power as well as to Part 15 devices.⁷ While higher power Amateur operations are excluded from the safe harbor and therefore subject to traditional secondary status with regard to LMS operations, the safe harbor does accomplish its limited goal of providing a baseline for interference complaints and allowing a subset of Amateur operation without fear of investment loss. Both Radio Amateurs and Part 15 users have benefitted since this provision was adopted. No problems with applying the safe harbor are known.

Nevertheless, as part of its proposal to effectively convert the lion’s share of this band to another band for high power commercial uses, NextNav requests that the Commission revoke this safe harbor. No rationale is provided, no problem stated, but in the context of the proposal it is evident that exclusive use, real or effective, is the petitioner’s goal and would be detrimental to all the other users.

⁶ See FCC, 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, 10 FCC Rcd 4695 at 4714, ¶ 34 (1995).

⁷ See 47 C.F.R. 90.361, establishing a “safe harbor” from interference complaints for a limited subset of Amateur operations as well as for many Part 15 devices.

Conclusion

For the above reasons, NextNav's petition should be denied.

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Respectfully submitted,

A handwritten signature in blue ink that reads "DR Siddall". The signature is written in a cursive style.

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CERTIFICATE OF SERVICE

I hereby certify that on this 5th day of September, 2024, a copy of the attached Opposition of ARRL, the National Association for Amateur Radio, was sent by email to petitioner:

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