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

In the Matter of	)	
	)	
Lower 37 GHz Band	)	WT Docket No. 24-243
	)	
Use of Spectrum Bands Above 24 GHz for Mobile Radio Services	)	GN Docket No. 14-177
	)	

COMMENTS OF PUBLIC KNOWLEDGE AND OPEN TECHNOLOGY INSTITUTE AT NEW AMERICA

Public Knowledge (PK) and New America's Open Technology Institute (OTI) submit these Comments in response to the Commission's Further Notice of Proposed Rulemaking relating to the framework established for the increased innovation, use, and coordination of the Lower 37 GHz band (37–37.6 GHz) between federal and non-federal users.[1] While PK and OTI support the Commission's goals of diverse spectrum access and innovation in the Lower 37 GHz band, we urge the Commission to adopt a modern spectrum sharing framework, utilizing an automated, third-party database, to ensure that the use of this band is flexible, robust, and available at low cost for diverse use cases.

I. COMMENTERS HAVE LONG SUPPORTED A ROBUST SPECTRUM SHARING FRAMEWORK FOR THE LOWER 37 GHZ BAND.

For over a decade, Public Knowledge and the Open Technology Institute at New America have supported the Commission in its aim to modernize spectrum sharing frameworks for enhanced competition, greater innovation, and more intensive spectrum use. Beginning as far back as 2015, PK and OTI have specifically endorsed an automated spectrum sharing mechanism

[1] *Lower 37 GHz Band, Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, WT Docket No. 24-243, Report and Order, Sixth Report and Order, and Further Notice of Proposed Rulemaking, WT Docket 24-243, GN Docket No. 14-177 (rel. Apr. 28, 2025) ("FNPRM").

for spectrum above 24 GHz. In response to the Commission's original Notice of Inquiry concerning the use and allocation of spectrum in the bands above 24 GHz, we advised the Commission to refrain from using an exclusive licensing model for millimeter wave spectrum (mmWave) and advocated for a light-licensing framework coordinated by an automated but lightweight database akin to that adopted in 2003 for the 70/80/90 GHz bands.[2] While the Spectrum Frontiers proceeding ultimately auctioned thousands of megahertz of mmWave spectrum, the Commission set aside the Lower 37 GHz band as a tool for mobile innovation, with the goal of developing an "effective and robust sharing mechanism" through an "inclusive and collaborative process ensur[ing] that all parties' needs are met."[3] Accordingly, in 2018, OTI advocated for site-based registration through a third-party coordinator, similar to the two-phase process under consideration now, but stressed this process as a transition to "the development of a more efficient and low-cost automated frequency coordination mechanism going forward."[4]

Our groups have long maintained that mmWave spectrum is "well-suited for a sharing framework that is open, nonrivalrous, and that borrows elements from both CBRS and the 70/80/90 GHz bands," relying on a light-licensing coordination approach where operators first obtain a nationwide, non-exclusive license and then register and coordinate their site-by-site

[2] Reply Comments of New America's Open Technology Institute (OTI) and Public Knowledge (PK), *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Inquiry, GN Docket No. 14-177 (Feb. 18, 2015); *see also* Comments of New America's Open Technology Institute (OTI) and Public Knowledge (PK), *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, GN Docket No. 14-177 (Jan. 28, 2016).
[3] *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, GN Docket No. 14-177, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, 8057, para. 115 (2016).
[4] Comments of New America's Open Technology Institute (OTI), *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, GN Docket No. 14-177 (Sept. 10, 2018).

deployments through an automated spectrum management system.[5] We continue to support this light-licensing automated coordination framework.[6]

More recently, with respect to a sharing framework for the Lower 37 GHz band, our groups joined a diverse group of industry stakeholders to support the Commission's current two-phase coordination framework, but only as "laying the foundation for more intensive and dynamic sharing in the band over time."[7] And in April, we reiterated our strong support for a more "simple, database-assisted mechanism" similar to the semi-automated portal and database that "currently and successfully coordinates sharing" in the 70/80/90 GHz bands.[8] Importantly, we expressed support for making the Lower 37 GHz band immediately available to operators ready to deploy, but urged the Commission to begin a rapid transition to an automated database coordination system. Such an automated system would be more cost-effective, promote innovation, and lead to far more efficient use of spectrum in the long run.

II. THE COMMISSION SHOULD IMPROVE PHASE ONE COORDINATION BY AUTHORIZING AN AUTOMATED, THIRD-PARTY COORDINATION DATABASE THAT IS FULLY TRANSPARENT AND INCORPORATES A ROBUST CLUTTER LOSS MODEL.

PK and OTI support the framework adopted by the Commission, but only as an intermediary step toward an automated light-licensing coordination mechanism in the near

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[5] Comments of New America's Open Technology Institute (OTI) and Public Knowledge (PK), *In the Matter of Shared Use of the 42-42.5 GHz Band*, Further Notice of Proposed Rulemaking, WT Docket No. 23-158 (Aug. 30, 2023).

[6] *See, e.g.,* Comments of New America's Open Technology Institute (OTI) and Public Knowledge (PK), *In the Matter of Modernizing and Expanding Access to the 70/80/90 GHz Bands*, Further Notice of Proposed Rulemaking, WT Docket No. 20-133 (May 29, 2024).

[7] Comments of Charter Communications, Inc., Federated Wireless, Inc., Open Technology Institute at New America; Qualcomm Incorporated; Starry, Inc. and WISPA, *In the Matter of Lower 37 GHz Band*, Public Notice, GN Docket No. 24-243 (Sept. 9, 2024).

[8] Ex Parte Letter of New America's Open Technology Institute (OTI) and Public Knowledge (PK), *In the Matter of Lower 37 GHz Band*, Report and Order, Sixth Report and Order, and Further Notice of Proposed Rulemaking, GN Docket No. 24-243 (Apr. 21, 2025).

future, with more dynamic features added later on as appropriate. We agree with the Commission "that ultimately the Phase One process of calculating interference contours for prospective sites, and comparing those contours to the contours of existing sites, may be automated through a portal."[9] An automated database coordination mechanism can be modeled on the 70/80/90 GHz system, which is simple, fast, fully transparent, and also incorporates automated coordination with federal users through an interface with NTIA. Initially, we suggest that the certification of a single database provider, coupled with a requirement of reasonable and uniform coordination fees, would be most likely to result in a sustainable model until such time as stakeholders demonstrate more extensive use of the band.

A. THE CURRENT TWO-PHASE FRAMEWORK SHOULD ONLY SERVE AS A TRANSITIONAL PROCESS UNTIL AN AUTOMATED LIGHT-LICENSING SYSTEM IS ADOPTED.

The two-step coordination framework adopted by the Commission, if it remains manual and relies on the Commission's Electronic Comment Filing System (ECFS), would maintain the bygone days of slow, costly, inconsistent, and spectrally-wasteful notice and response coordination under the old Part 101 rules.[10] Like the proven coordination system for 70/80/90 GHz, an automated portal and database mechanism can apply algorithms that instantly calculate interference contours and other parameters for proposed sites and compare them immediately to other registered users that might be impacted. While the Commission's current phase one would rely on manual coordination, an automatic database framework would make initial coordination much faster and more efficient.

Phase two would largely remain the same, at least for the time being, but would become far more effective and spectrum efficient with an automated database. If there is an overlap or

[9] *FNPRM* at para. 63.
[10] *See e.g.,* 47 C.F.R. § 101.103.

other likely cause of interference to one or more already-coordinated operators, parties would be notified automatically and given the opportunity to either change their operating parameters and/or coordinate to eliminate any conflicts. And, unlike a manual Part 101 process, the database provider would be able to immediately inform the party seeking to coordinate about the nature of the conflict (e.g., the specific frequency, power level, height or location creating conflict), who to contact to seek a coordination agreement, and even what changes could result in a successful coordination (perhaps as a value-added feature). This would not fundamentally change the purpose of phase two but would drastically speed up coordination where there is potential interference.

Using an automated and low-cost mechanism to open access to the Lower 37 GHz band will also enable coordinated use by a wide variety of use cases and lead to increased innovation. The Commission has an opportunity here to develop a framework that is future-proof and future-forward, coordinating with consistent algorithms at low cost, and capable of accommodating a diversity of technologies – including fixed wireless, terrestrial mobile, and fixed satellite earth stations – with very different interference contours. This is not a job for the Part 101 of old. A manual two-phase coordination framework is a step in the right direction but is not sufficient to enable the coexistence and growth of use by satellite, terrestrial fixed wireless, and mobile operators in the years to come.

B. AN AUTOMATED, THIRD-PARTY COORDINATION DATABASE WILL ENABLE MORE EFFICIENT, FLEXIBLE USE OF THE LOWER 37 GHZ BAND.

The manual two-phase coordination process adopted by the Commission will not support the future potential of the Lower 37 GHz band. While this band has relatively few users now, modernizing the coordination framework can make this band more hospitable to innovative uses that harness the most advanced technologies and use spectrum in new ways that respond better to

dynamic needs. Just as Chairman Carr stated: "We cannot allow outdated Commission rules to stifle investment and innovation… especially… for satellite services, which are subject to slow, resource-intensive, and bespoke review mechanisms."[11] An automated, third-party database for frequency coordination is exactly what will allow the Commission to achieve its goals.

The use of an automated database to coordinate spectrum sharing has already proven to be reliable in enabling effective shared and robust use of mmWave spectrum (70/80/90 GHz), as well as in other diverse bands. The Commission's world-leading authorization of spectrum database coordination, beginning with the 70/80/90 GHz framework two decades ago, demonstrates that using automated, third-party database coordination has led to enormous public interest benefits that include more intensive use of spectrum resources, better protection of incumbent licensees, lower access costs for operators, more consistent outcomes, and quicker responses for changes in the use of mmWave bands.[12] The Commission should fully automate the Lower 37 GHz band's two-phase coordination framework by certifying a third-party database system that builds on the long-proven coordination of point-to-point links, high-altitude platform station systems (HAPS), and an increasing number of users in the 70/80/90 GHz bands, including federal users.[13]

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[11] Brendan Carr, Remarks of FCC Chairman Brendan Carr Sioux Falls, South Dakota "A Build Agenda For America" (Jul. 2, 2025).

[12] *See generally*, Michael Calabrese, "Solving the Spectrum Crunch: Dynamic Spectrum Management Systems," Dynamic Spectrum Alliance report (Oct. 2023), available at https://www.dynamicspectrumalliance.org/solving-the-spectrum-crunch.pdf.

[13] PK and OTI have long advocated that the 70/80/90 GHz Comsearch light-licensing framework can be extended to accommodate the widest possible array of connectivity solutions, including HAPS, FSS gateways, and more. *See, e.g.,* Comments of New America's Open Technology Institute (OTI) and Public Knowledge (PK), *In the Matter of Modernizing and Expanding Access to the 70/80/90 GHz Bands*, Further Notice of Proposed Rulemaking, WT Docket No. 20-133 (May 29, 2024); Comments of New America's Open Technology Institute (OTI) and Public Knowledge (PK), *In the Matter of Modernizing and Expanding Access to the 70/80/90 GHz Bands*, Public Notice, WT Docket No. 20-133 (Dec. 2, 2021).

An automated portal and database should, at its most basic level, function similarly to the FCC's own Universal Licensing System, providing up-to-date spectrum usage information and serving as a publicly transparent portal and repository for licensing and site-based registrations. However, beyond this functionality, the database should be capable of evolving quickly into an automated coordination database that calculates interference contours on a consistent basis for a wide variety of potential flexible use cases. Furthermore, the database must be fully transparent and easily accessible so that it can also serve as a network planning tool, and not just a license registration arbiter and repository.

One of the most important benefits of such a database–something that is not possible with the Commission's current framework–is that this database can enable much more flexible use of spectrum by a wide variety of terrestrial and satellite operators. When processing the calculation of interference contours, a computational database can rapidly and consistently take account of the technical elements for each requested terrestrial deployment or earth station location (*e.g.*, antenna parameters, power, height AGL, clutter loss) and calculate useful protection contours on an automatic and continuous basis. This functionality would make coordination much easier and allow enhanced use of co-primary spectrum resources, potentially even including real-time adjustments to ensure that spectrum is appropriately shared. Such a database will also make it more feasible for more use cases to coordinate on a light-licensing basis, supporting growth and innovation.

Further, this capability would allow fixed satellite earth station gateways to coordinate more easily with terrestrial users and potentially eliminate the cumbersome rules that make it harder to coordinate in particular mmWave bands. And because sharing in the Lower 37 GHz band is on a co-primary basis, a database that rapidly identifies the need to engage in voluntary

coordination optimizes coexistence and would be particularly productive. Finally, as use of the band increases over time–and especially if congestion becomes evident–the Commission should be open to considering the addition of dynamic spectrum sharing system (DSMS) features that could ensure the band is shared as efficiently and fairly as possible in both urban and rural areas.

The Commission need look no further than the database established for the 70/80/90 GHz bands back in 2003 for a concrete example of how effectively a light-weight automated frequency coordination database can manage coexistence in mmWave spectrum. Here, operators must first register links for coordination, but they do not need to shoulder the cost and delays of a lengthy manual Part 101 licensing process. Further, coordination is simple on a first-come, first-served basis through a transparent centralized system that also coordinates with federal users through NTIA. An operator simply plans a fixed link and submits key technical information into the database, where the proposed link is checked against all existing and pending links to ensure there is no interference. If there is no conflict, the link is approved. If there is interference, the link must either be modified, or parties may negotiate to remove the conflict. The Comsearch database used is fully transparent, providing constantly-updated and downloadable information to interested parties to enable them to do their own preliminary assessment of what locations and frequencies are available and indicate whether sites are requested, coordinated, or constructed in real-time. This database serves as an optimal starting model for what should be developed for the Lower 37 GHz band.

C. ANY DATABASE USED MUST BE TRANSPARENT.

To ensure that the Commission develops an efficient database that actually serves the public interest, the Commission must ensure that any database is as transparent as ULS and makes up-to-date access to registration and deployment information freely and easily accessible to any operator, consumer, band incumbent, or other interested party. This not only makes it

easier to plan networks and scout new sites, but also makes it less expensive to do so, benefiting small and local operators the most. For example, the two database providers certified to coordinate site-based registrations in the 70/80/90 GHz band allow any stakeholder or member of the public (after setting up an account) to download the up-to-date database, allowing the data to easily and at no cost be explored or imported into a spreadsheet for pre-registration network planning and other purposes.

Just like the Commission's own Universal Licensing System and the 70/80/90 GHz coordination database, the Lower 37 GHz database should make all similar licensee and site-based registration information and other usable data easily accessible and freely available to stakeholders and the public.

D. THE DATABASE SHOULD INCORPORATE CLUTTER LOSS IN THE CALCULATION OF INTERFERENCE CONTOURS.

Clutter loss, which is characterized by physical obstructions in the environment affecting wireless signals, is an important consideration in the Lower 37 GHz band. This band is particularly susceptible to attenuation and often to the complete blockage of signals due to the short wavelength characteristics of high-frequency mmWave spectrum. Furthermore, the most likely terrestrial uses of the band in both urban areas with dense buildings or rural areas with dense tree coverage will enable more intensive sharing and frequency re-use. Overall, at 37 GHz, almost any clutter can be a complete obstruction. Therefore, incorporating robust clutter data must be considered essential to any coordination framework for this mmWave band.

Unfortunately, existing clutter models do not appear to be up to the task. A common model, the ITU's Prediction of Clutter Loss model (P.2108), is a statistical model that estimates signal loss due to clutter near the terminals in line-of-sight conditions. However, the method used is based on average likelihoods, not actual paths, and adds no loss to paths below 250 meters. In

a mmWave band, where virtually any clutter blocks a signal, it is vital to take account of clutter data as close to ground level as possible. Developments in new models based on Lidar mapping are better, especially in urban settings, and should be allowed, if not required.

Regardless of the modeling used, in order to properly consider clutter loss, it should be incumbent on the database provider to take the actual built environment into consideration. The Commission can look to the automated frequency coordination systems in 6 GHz and in CBRS 2.0, where the Spectrum Access Systems now better incorporate clutter, as templates for incorporating clutter into a database. In any case, in the development of an automated or even dynamic sharing database, we urge the Commission to require the database provider to properly consider clutter.

III. CONCLUSION

In conclusion, PK and OTI support the Commission's broad goals to open up the Lower 37 band to shared and flexible use. While we believe the current two-phase framework is a step in the right direction for spectrum innovation, this framework must only serve as a transitional step toward a more robust automated spectrum sharing framework utilizing a third-party database. This database should be flexible, transparent, and consider clutter in its modeling. Such a database will enable operators to more efficiently utilize the Lower 37 GHz band, leading to great strides in innovation and American leadership in the wireless and satellite industries.

Respectfully submitted,

/s/ Peter Gregory
/s/ Harold Feld
Public Knowledge
1818 N Street NW, Suite 410
Washington, DC 20036

/s/ Michael Calabrese
/s/ Jessica Dine
Open Technology Institute at New America
740 15th Street, NW Suite 900
Washington, DC 20005

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