

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

In the Matter of)
)
Amendment of Part 90 of the Commission’s Rules) WP Docket No. 07-100

COMMENTS OF APCO INTERNATIONAL

The Association of Public-Safety Communications Officials-International, Inc. (APCO)¹ submits these comments in response to the Commission’s Eighth Further Notice of Proposed Rulemaking in the above-captioned proceeding.² The Commission seeks comment on how to maximize public safety use while exploring options that could spur innovation, improve coordination, and drive down costs in the band.³

APCO appreciates the Commission’s refocus on public safety use of the band and the comprehensive approach to spurring innovation and driving down costs. The 4.9 GHz band supports a variety of mission critical communications needs, including fixed microwave links for first responder radio networks and station alerting, wireless “hotspots” for high-speed public safety data sharing, video surveillance systems, tactical robots, and airborne connectivity. Protecting public safety use of the band is essential because, as APCO has explained, public safety agencies do not have spectrum options that could replace the 4.9 GHz band.⁴

¹ Founded in 1935, APCO is the nation’s oldest and largest organization of public safety communications professionals. APCO is a non-profit association with over 36,000 members, primarily consisting of state and local government employees who manage and operate public safety communications systems – including 9-1-1 Emergency Communications Centers (ECCs), emergency operations centers, radio networks, and information technology – for law enforcement, fire, emergency medical, and other public safety agencies.

² Amendment of Part 90 of the Commission’s Rules, WP Docket No. 07-100, *Eighth Further Notice of Proposed Rulemaking*, FCC 21-206 (Oct. 1, 2021) (“FNPRM”).

³ *Id.* at para. 27.

⁴ Comments of APCO International, WP Docket No. 07-100, at 4 (filed July 6, 2018) (“APCO 2018 comments”).

As discussed below, APCO agrees with the Commission's principles for improving the 4.9 GHz band and, based on these principles, offers recommendations for immediate changes to the rules and considerations for long-term changes for the band.

I. APCO Supports the Commission's Principles for Improving the 4.9 GHz Band

APCO supports the principles described in the FNPRM for unlocking the potential of the 4.9 GHz band by emphasizing public safety needs and adopting a nationwide approach to promote a robust equipment market, drive down prices and costs, and spur innovation.⁵ APCO agrees that a comprehensive approach that emphasizes public safety needs represents a superior path to unlocking the potential of the band than an approach that could lead to a patchwork of incompatible uses.⁶ Non-public safety use should only be allowed if it can occur without causing harmful interference to public safety operations in the band.⁷

II. The Commission Should Take Immediate Actions to Promote Public Safety Use of the 4.9 GHz Band

The public safety community has long been waiting on the Commission to take actions that will make the 4.9 GHz band a more attractive option for mission critical communications. Immediate changes to increase flexibility and protect public safety operations will drive public safety use.

A. Ensure Public Safety Use of the 4.9 GHz Band is Free from Interference by Requiring Frequency Coordination by Public Safety Coordinators

The Commission seeks comment on requiring formal frequency coordination in the 4.9 GHz band to support interference protection and increase public safety confidence in using

⁵ FNPRM at para. 27.

⁶ *Id.*

⁷ *Id.*

the band⁸ and tentatively concludes that such a requirement is necessary.⁹ APCO agrees with the Commission’s tentative conclusion. Public safety communications require reliable, interference-free access to spectrum. Frequency coordination is the most effective way to promote public safety use of the band and will complement any spectrum-sharing technologies that might be adopted for the band by increasing efficiency in spectrum use and preventing interference.

Given the diverse types of public safety operations in the band, multiple approaches to coordination are required. For base station and mobile use, Part 90 contour-based coordination is appropriate. For fixed point-to-point (P-P) and point-to-multipoint (P-MP) use, a propagation modeling approach similar to what is being used based on the Public Safety Communications Council (PSCC) recommendations for coordinating TDMA systems operating in shared VHF spectrum would be preferable to TIA-10 or Part 101 type coordination.¹⁰ While the PSCC approach will require registering information about receiver-side equipment, coordination will be much simpler and more efficient overall.

Coordination in the 4.9 GHz band should be limited to public safety frequency coordinators. The longstanding requirement of “representativeness” of the users of the frequencies to be coordinated¹¹ will be valuable for coordinating operations and protecting public safety’s interests, particularly if use of the band becomes more complicated by introduction of new technology and non-public safety users. Public safety coordinators share a community of interest and often have direct relationships with the agencies and first responders they serve, and

⁸ *Id.* at para. 45.

⁹ *Id.* at para. 47.

¹⁰ See Letter from Farokh Latif, Chairman, Public Safety Communications Council, to Michael Wilhelm, Deputy Chief, Policy and Licensing Division, Public Safety and Homeland Security Bureau (Jan. 22, 2013).

¹¹ See Frequency Coordination in the Private Land Mobile Radio Services, PR Docket No. 83-737, *Report and Order*, 103 FCC 2d 1093 (1986).

any Regional Planning Committees (RPCs). Non-public safety coordinators will not be positioned to understand the unique needs of public safety users, protect both new and incumbent users from harmful interference, and make coordination decisions in the best interests of public safety.

B. Maintain and Enhance ULS As the Comprehensive Licensing Database for 4.9 GHz

The Commission tentatively concludes that more robust information on public safety operations in the band would be helpful and seeks comment on whether to continue using ULS or transition to a third-party licensing database.¹² APCO supports using ULS with any necessary enhancements to ULS's functionality and opposes transitioning to a third-party database. The data in ULS should be improved by requiring incumbent licensees and new applicants to provide technical information that will enhance frequency coordination and help mitigate the possibility of interference, uncoupling base and mobile stations from geographic licenses, and adding the 4.9 GHz band to the ULS microwave schedule for P-P, P-MP, and fixed receiver stations.¹³

C. Increase Flexibility for Public Safety Licensees

The Commission seeks comment on a variety of technical options for its nationwide framework.¹⁴ APCO agrees with the Commission's approach to favor technology-neutral rules¹⁵ and would go a step further to promote increased use and innovative technological approaches to the 4.9 GHz band. Consistent with APCO's response to the Sixth Further Notice, the Commission should:

- Permit channel aggregation up to 50 MHz.

¹² FNPRM at para. 32.

¹³ *See id.* at para. 33 (citing APCO 2018 comments at 3).

¹⁴ *Id.* at para. 60.

¹⁵ *Id.* at para. 58.

- Decline to specify a band plan for the 4.9 GHz band and permit public safety frequency coordinators flexibility to assign channels in a way that maximizes spectrum efficiency while protecting public safety from harmful interference. This flexibility should extend to issues such as which channels to use for aeronautical mobile and robotic uses.
- Allow Unmanned Aerial System use.
- Modify power restrictions to increase spectral efficiency and broadband use. Specifically, allow an Effective Isotropic Radiated Power (EIRP) for fixed P-P and P-MP operations equivalent to Part 101 levels. Higher EIRP levels encourage agencies to deploy larger antennas to achieve higher broadband data rates, compensating for the loss of system gain of the equipment when using higher order modulation schemes. This flexibility will enable broadband data rates at longer distances in rural areas, and in the event that multiple microwave links in a chain are required, fewer hops will be required to traverse the same distance, reducing overall equipment costs. Larger and more efficient antennas (in conjunction with the effective use of link polarization) will be important tools to maximize the frequency reuse of P-P channels and reserve more spectrum for mobile use.¹⁶
- All permanent fixed P-P and P-MP operations should be accorded primary status, not just those designated as delivering “broadband” traffic.¹⁷

Each of these changes would benefit public safety use without creating hurdles to additional changes for the band. In adopting these changes, the Commission should commit to preserving the 4.9 GHz band for public safety use. After the rules are changed to increase flexibility and provide assurance of interference-free access to the band through frequency coordination, time will be needed for these changes to take effect and permeate through the marketplace before public safety agencies can act on the new opportunities. Public safety agencies and technology vendors will be less likely to invest in 4.9 GHz solutions if they lack confidence that the band will be a long-term option for public safety.

III. Long-term Steps to Promote Use of the Band Must Be Carefully Considered

¹⁶ APCO is open to limiting EIRP for shorter paths similar to Part 101, provided that doing so takes into account the worst case planning conditions that require higher fade margins (tropical climates, flat terrain, coastal paths, and areas with higher reflectivity/refractivity, etc.).

¹⁷ See FNPRM at n.136 (explaining that, currently, only links that deliver broadband traffic are accorded primary status, while links that do not meet this criterion are secondary).

The Commission seeks comment on designating a nationwide licensee or band manager, expanding eligibility to the band, adopting interoperability requirements, continuing or expanding the role of RPCs, and several options for introducing non-public safety use of the band. Each of these approaches presents risks to public safety use of the band and should therefore be closely scrutinized.

A. Designating a Nationwide Band Manager

APCO opposes the concept of designating a single nationwide band manager that would be responsible for developing a nationwide framework¹⁸ and establishing a national license for the 4.9 GHz band.¹⁹ Designating a band manager raises concerns over how the band manager will be compensated, the impact on local control over public safety communications, and whether a third party would be driven by monetary interests rather than public safety.

The potential roles of a band manager – developing a nationwide framework, deciding who can use the band, evaluating applications, managing users, etc. – are more appropriately kept with the Commission, public safety frequency coordinators, and public safety agencies using the band. To the extent that a nationwide band manager could play a role for non-public safety use of the band, other options explored in the FNPRM would be more effective.

B. Adopting Interoperability Requirements

The Commission asks whether any interoperability requirements are needed for the band.²⁰ APCO is not aware of interoperability issues for 4.9 GHz. The use cases for 4.9 GHz do not implicate the interoperability issues more commonly seen in bands used for land mobile radio networks.

¹⁸ *See id.* at para. 52.

¹⁹ *Id.* at para. 53.

²⁰ *Id.* at para. 38.

C. Continuing or Expanding the Role for Regional Planning Committees

The Commission seeks comment on whether RPCs should continue to play a role in a management framework for the 4.9 GHz band, noting that only 10 of 55 RPCs have filed voluntary plans with guidelines for 4.9 GHz use for the RPCs' regions.²¹ APCO has previously indicated being open to a role for RPCs²² but notes that any continued or expanded role should take into account the funding and authority limitations creating challenges today.

D. Non-Public Safety Use of the Band

The Commission seeks comment on several options for introducing non-public safety use of the band, including sharing frameworks, unlicensed access, expanded eligibility, leasing alternatives, and an incentive auction. Each of these options presents risks to the Commission's goals of emphasizing public safety needs and maintaining a consistent approach nationwide.

APCO is not opposed to a sharing approach provided that public safety is guaranteed priority and preemption over other users. As the 4.9 GHz Task Force report indicated, a framework for sharing the band with non-public safety users could be beneficial so long as public safety use is protected.²³ Sharing has the potential to achieve the Commission's spectrum efficiency goals and create opportunities for incumbents and new entrants alike in the 4.9 GHz band. Opening the band to more users can also encourage equipment manufacturers to innovate and develop an expanded device ecosystem for the band. However, any sharing techniques must be tested and proven in advance to be effective at protecting public safety's use of the band.

²¹ *Id.* at para. 56.

²² APCO 2018 comments at 7.

²³ 4.9 GHz Task Force Report of APCO, WP Docket 07-100, PS Docket No. 06-229, WT Docket No. 06-150, at 14 (filed Sept. 28, 2015).

Public safety spectrum bands are not the appropriate arena to deploy new, unproven spectrum sharing methods.

Expanding leasing options or implementing an incentive auction threaten public safety use and risk creating a patchwork environment. Both options could be impractical given the complexity of public safety use (i.e., overlapping state, county, and local jurisdictions, and the mix of 9-1-1, law enforcement, fire, and EMS agencies). In some cases, the public safety agency investing in and using 4.9 GHz is not the license holder, and regardless, public safety licensees should not be put in a position to weigh monetizing their spectrum in exchange for operational usefulness. Expanded leasing options and an incentive auction could fragment the band and create a patchwork of separate and incompatible uses, which the Commission has recognized is inherently problematic.²⁴

Should the Commission proceed with further consideration of expanding access for non-public safety users, it will be important to consider how these other users will put the band to use and the degree of increased risk of interfering with public safety use of the band. For any sharing framework, public safety priority and preemption must be fundamental. APCO opposes granting co-primary status for any other groups, including critical infrastructure industry (CII) entities, and the costs of sharing must be outweighed by clearly-defined benefits. For example, in considering whether CII entities should be permitted access to the band in a way that is distinguishable from other types of non-public safety users, the Commission rightly asks for evidence on whether CII access to the band will sufficiently increase use of the band nationwide

²⁴ FNPRM at para. 22 (observing that “the State Lessor framework—where decisions driving technical operations would be balkanized across the different states and territories—and the introduction of confusion surrounding the band’s rules (and timelines for implementation thereof) would undermine certainty and predictability, thereby reducing incentives to invest in the band, hindering the development and deployment of new technologies, and increasing the risks of incompatible operations.”).

to encourage innovation and impact equipment costs.²⁵ This type of inquiry into whether the benefits to public safety outweigh the costs of non-public safety use should be at the forefront of any additional changes for the band.

Respectfully submitted,

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