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March 29, 2018

Marlene Dortch  
Secretary

Federal Communications Commission  
445 Twelfth Street, SW  
Washington, DC 20554

**Re: Notice of *Ex Parte*, GN Docket No. 17-183**

Dear Ms. Dortch:

I am writing to express APCO's continued concern with the proposed expansion of the 5.925-6.425 and 6.425-7.125 GHz bands to include unlicensed and new fixed/mobile uses. As APCO pointed out last fall when responding to the Notice of Inquiry,<sup>1</sup> the 6 GHz band is heavily used and relied upon for fixed point-to-point microwave links essential to public safety services, including backhaul for mission critical land mobile radio systems that support dispatch and tactical communications.<sup>2</sup> Furthermore, public safety has no other viable spectrum options to support these essential services. To avoid negatively impacting public safety communications, the Commission should consider bands other than 6 GHz to achieve its flexible spectrum use goals.

After the comment period closed for the Commission's NOI, a coalition of companies submitted a study they commissioned from RKF Engineering Services that purported to demonstrate that unlicensed services can successfully coexist with the primary services present in the 6 GHz band.<sup>3</sup> Several parties have refuted RKF's analysis, pointing out numerous technical flaws, erroneous assumptions, and the failure to address key issues.<sup>4</sup> APCO shares the concerns

<sup>1</sup> In the Matter of Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183, *Notice of Inquiry*, FCC 17-104 (rel. Aug. 3, 2017) ("NOI").

<sup>2</sup> Comments of APCO, GN Docket No. 17-183 (filed Oct. 2, 2017).

<sup>3</sup> *Ex Parte* Letter of Paul Margie, Counsel to Apple Inc., Broadcom Corporation, Facebook, Inc., Hewlett Packard Enterprise, and Microsoft Corporation, GN Docket No. 17-183 (filed Jan. 26, 2018) ("RKF study").

<sup>4</sup> *Ex Parte* Letter of AT&T, GN Docket No. 17-183 (filed Mar. 19, 2018) Exhibit; *Ex Parte* Letter of SES Americom, GN Docket No. 17-183 (filed Mar. 2, 2018) Technical Annex; *Ex Parte* Letter of Cheng-yi Liu and Mitchell Lazarus, Counsel for the Fixed Wireless Communications Coalition, GN Docket No. 17-183 (filed Mar. 13, 2018) ("FWCC Analysis"); *Ex Parte* Letter of the National Spectrum Management Association, GN Docket No. 17-183 (filed Mar. 27, 2018).

with the RKF study described by these parties and here offers additional considerations that weigh against opening the 6 GHz band to unlicensed use.

Most troubling is that the RKF study underestimates both the likelihood of interference as well as the detrimental impact of interference.<sup>5</sup> The potential for unlicensed use to render the 6 GHz band untenable for public safety is a serious concern that the RKF study fails to disprove. APCO remains unconvinced that unlicensed devices could be introduced without causing harmful interference to public safety microwave operations and increasing the cumulative amount of interference in the band nationwide. An elevated noise floor degrades the performance of existing systems, and in the case of public safety incumbents, would introduce design complexities that would drive costs for microwave routes beyond practical limits. Coupled with the lack of alternative microwave bands suitable for public safety's needs,<sup>6</sup> agencies would be left with no viable alternatives.

Public safety would also face little recourse to address the interference that will occur if the 6 GHz band is opened to unlicensed use. Fixed service systems such as those relied upon by public safety for mission critical communications are not designed to detect interference, and distinguishing between naturally-occurring fades and interference from unlicensed use will be difficult. Even if the sources of interference can be detected, identifying them will be essentially impossible given the mobile and fluctuating nature of unlicensed activity. Further, if the interference can be identified, there is no practical process for mitigation given the lack of identities and control over unlicensed operations.<sup>7</sup>

Public safety agencies rely on the 6 GHz band for interference-free communications critical to the safety of life and property. APCO will continue to oppose the introduction of unlicensed use of the band until it has been adequately demonstrated that public safety communications will be protected.

Respectfully submitted,

/s/

Jeffrey S. Cohen  
Chief Counsel

Mark S. Reddish  
Senior Counsel

<sup>5</sup> For example, when interference occurs, the impacts could be much worse than the RKF study anticipated. The FWCC analysis explains that “even a short interference episode to one microwave receiver can cause an entire network to lose synchronization and stay out of service for 15 minutes or more while it resynchronizes.” FWCC Analysis at 21. APCO agrees and in fact would expect it would take up to 30 minutes before the base station can regain stabilization. Thus, a single occurrence of interference would result in significant downtime for a mission critical microwave link. For systems requiring high levels of reliability, such as public safety's typical “five nines” - 99.999% (limiting annual outage time from all causes to five minutes), this anticipated level of interference is clearly unacceptable.

<sup>6</sup> See Comments of APCO at 2 (explaining that the 6 GHz bands are the most ideal for long haul microwave transmissions, as opposed to alternative bands that are limited by shorter path lengths and susceptibility to signal attenuation from environmental factors like rain).

<sup>7</sup> As APCO pointed out previously, public safety bands are not the appropriate arena to deploy new, unproven spectrum sharing and frequency coordination methods. *Id.* at 3-4.