

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

In the Matter of )  
 )  
Amendment of the Commission’s Rules ) GN Docket No. 12-354  
with Regard to Commercial Operations in )  
the 3550- 3650 MHz Band )

**COMMENTS OF THE DYNAMIC SPECTRUM ALLIANCE**

The Dynamic Spectrum Alliance<sup>1</sup> (DSA) commends the Commission for adopting rules that will enable effective sharing between federal incumbents, fixed-satellite stations, and wireless services in the 3550-3700 MHz band (the 3.5 GHz band).<sup>2</sup> As the Commission refines and implements its sharing policy for the 3.5 GHz band, it should heed the following principles in order to maximize spectrum utilization and consumer benefits. First, the Commission should use engineering criteria to determine whether a priority access license (PAL) holder has placed spectrum “in use,” such that General Authorized Access (GAA) users are excluded. The Commission should not adopt an economic definition of use, which would enable spectrum warehousing. Second, the Commission should establish FSS protections based on real-world

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<sup>1</sup> The Dynamic Spectrum Alliance is a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies. The membership spans multinational companies, small-and-medium-sized enterprises, academic, research, and other organizations from around the world, all working to create innovative solutions that will increase the utilization of available spectrum to the benefit of consumers and businesses alike. A full list of members is available at [www.dynamicspectrumalliance.org/members.html](http://www.dynamicspectrumalliance.org/members.html).

<sup>2</sup> *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959 (2015) (Report and Order and Second FNPRM).

(rather than worst-case) interference protection criteria and enable SAS providers to improve their propagation models over time.

**1. The Commission should adopt an engineering-based definition of “use.”**

In the Second FNPRM, the Commission asks how to implement GAA access to spectrum that is licensed to a PAL holder, but not in use.<sup>3</sup> For this purpose, the Commission should adopt a definition of “use” based on the engineering requirements of the systems deployed by the PAL holder, not economic considerations. For example, the Commission could establish protection areas by requiring PAL holders to provide to a SAS the locations and technical characteristics of Citizens Broadband Radio Service Devices (CBSDs) it deploys in each of its licensed service areas. The SAS could then calculate required protection for each CBSD based on the device’s characteristics and its operating environment. Alternatively, the Commission could require PAL holders to register protection areas directly with the SAS and ask PAL holders to support their requests with a verified statement to the Commission stating that the protection areas are based on sound engineering considerations.

An engineering definition of “use” should also permit both PAL operations and GAA operations to traverse license tract boundaries. For example, PAL operators should be permitted to register protection areas that span multiple adjacent census tracts where they have rights, so long as the operators actually deploy service in the declared protection areas. Conversely, GAA use, including highly directional point-to-point links that may span several license tracts in a densely populated area, should be permitted so long as it does not interfere with PAL operations.

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<sup>3</sup> *Id.* at ¶ 419 (citing *id.* at ¶¶ 72, 74).

An economic definition of “use” would not serve the Commission’s goal of maximizing use of 3.5 GHz band spectrum.<sup>4</sup> Under an economic definition of use, a PA licensee could preclude GAA users from using PA spectrum regardless of whether it has deployed any service at all in the license area. By allowing and perhaps even encouraging PAL holders to limit access to spectrum even if they have no plans to put such spectrum into productive use, an economic approach encourages warehousing.<sup>5</sup> As such, it should be rejected.

**2. The Commission should protect in-band and out-of-band FSS stations using reasonable, real-world interference protection criteria.**

The Commission should apply the following precepts when fine-tuning its approach to protecting FSS stations:

First, the Commission should not adopt default or generalized protection zones for FSS earth stations. Instead, protection should take into account individualized factors such as propagation, terrain, earth station pointing angles, and transmitter characteristics. Default protection zones will rely on worst-case assumptions regarding all of these factors, resulting in over-protection of incumbents, loss of usable spectrum for CBSDs and, therefore, diminished investment in the 3.5 GHz band.

In particular, the Commission should require SASs to take into account actual effects of aggregate interference in determining FSS protection. Failure to take into account aggregation effects will require SASs to make worst-case density assumptions, even if deployments are not dense. The DSA acknowledges concerns that aggregation could allow early adopters to use up a large share of the interference margin associated with a particular FSS site, leaving little or no opportunity for subsequent entry. The Commission may wish to consider other approaches that

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<sup>4</sup> See *id.* at ¶¶ 425-429 (discussing the economic approach).

<sup>5</sup> 47 U.S.C. § 309(j)(4)(B).

address this issue. The DSA expresses no view how best to balance these policy considerations. Rather, it simply emphasizes that using worst-case assumptions regarding deployment density will ensure that spectrum in all areas will be under-utilized at first, and in many places it will always be underutilized. Limited utilization, in turn, undermines the Commission's overall goals in adopting rules for the 3.5 GHz band.

Second, the Commission should promote research and innovation in more accurate propagation modeling by establishing a baseline propagation model and allowing SAS providers to differentiate themselves by offering more sophisticated modeling techniques. Allowing SAS providers to offer differentiated propagation models has several benefits. It will open avenues to competition among SAS providers in developing more accurate propagation modeling methods, as each seeks to offer optimal spectrum use options to Priority Access and GAA users. It will also allow SAS providers to improve their spectrum availability calculations by incorporating data reported by CBSDs regarding local signal propagation environments.<sup>6</sup> Advancements in propagation modeling for the 3.5 GHz band are likely to be applicable to other bands and applications, as well, thereby contributing to improved spectrum utilization across many bands.

The Commission's April 2015 Report and Order establishes a strong framework for spectrum sharing in the 3.5 GHz band. As the Commission continues to refine this framework, it should adopt approaches that maximize commercial wireless use while protecting existing incumbents.

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<sup>6</sup> 47 C.F.R. § 96.39(d).

Respectfully submitted,



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