

Aeronet Wireless Broadband LLC

Statement in Support of Experimental License Application

Aeronet Wireless Broadband LLC (“Aeronet”), pursuant to Section 5.63(c)(1) of the Commission’s Rules, provides this statement in support of its application for a new experimental Special Temporary Authority (“STA”) to conduct an additional technology trial using spectrum in the 3550-3650 MHz band transmitting from five existing and seven additional access point locations in the San Juan, Puerto Rico area. Aeronet requests an STA term equal to the shorter of (a) six (6) months from grant of this application, or (b) Aeronet’s grant of authority from a Spectrum Access System (“SAS”) and Dynamic Protection Area (“DPA”)-enabled SAS software to operate the authorized equipment and facilities on a General Authorized Access (“GAA”) basis.

Aeronet currently holds a special temporary experimental authorization to conduct a trial from five access points using equipment furnished by Cambium Networks (Call Sign WQ9XOX). That authorization expires December 2, 2020. Aeronet was encouraged by its initial trial and now believes that additional testing, with additional locations using Cambium equipment, is necessary in order to help inform Aeronet’s decision on whether and to what extent consider deploying on CBRS spectrum.

Background

Aeronet is a fixed wireless service provider that provides broadband service to approximately 8,000 customers in Puerto Rico. It relies on a combination of unlicensed and lightly-licensed spectrum and fiber optics to provide these services.

Aeronet’s operations, infrastructure, equipment and customer base were affected by the windstorms and damage caused by Hurricanes Irma and Maria. In the aftermath of the storms, Aeronet has focused on rebuilding and returning to normal operating conditions. As of today, approximately 99% of Aeronet’s customers have resumed their regular commercial services. Aeronet has taken substantial strides and expended significant resources to resume operations.

To meet these objectives, Aeronet intends to experiment with access point and customer premise equipment (“CPE”) on the Cambium Networks platform. Based on its initial STA, research and understanding of the technical rules for CBRS, Aeronet believes that this platform can be a successful deployment option, and that in mid-band spectrum may offer consumers the best combination of throughput, propagation, cost and performance in areas where access to competitive broadband services is lacking. As it continues to restore and improve fixed broadband service in Puerto Rico, Aeronet expects to gain a better “real world” understanding of the benefits, challenges and costs associated with deployment of the equipment.

Trial Objectives

Aeronet has identified the following objectives of the proposed trial:

- Test CBRS RF propagation characteristics in line-of-sight and non-line-of-sight environments
- Test CBRS RF propagation characteristics in indoor and outdoor installation scenarios
- Test CBRS three 20-megahertz channel carrier aggregation capability and performance
- Validate ability to offer 100/25 Mbps speed with CBRS carrier aggregation
- Compare performance with the BlinQ equipment used in a previous trial.
- Develop a use case to encourage more expeditious deployment of the ESC in Puerto Rico

Overall, this new STA will provide Aeronet with additional information to help make its future equipment, expansion and network investment plans. Assuming the trial is successful and an ESC is authorized in Puerto Rico, Aeronet plans to utilize spectrum in the entire 150 megahertz of 3550-3700 MHz spectrum.

Aeronet believes that the ability to share the 3550-3700 MHz band under the control of the SAS and ESC represents a positive change in spectrum management policy and will eventually result in extremely efficient and widespread use of this 150 megahertz of spectrum for both small cell technologies for mobile wireless broadband and higher power technologies for fixed wireless broadband in rural and underserved locations. As a fixed wireless broadband provider, cost-effectiveness is an important factor in Aeronet's future deployment and investment decisions.

In order to meet the defined objectives of the trial, Aeronet seeks a new STA to use spectrum in the 3550-3650 MHz band, transmitting from the twelve access point locations identified in this application. Aeronet plans to deploy Cambium Networks equipment and a DPA-enabled SAS on an experimental basis to determine equipment and technology performance and the market potential resulting from additional mid-band spectrum. In sum, this experiment will inform Aeronet's business, investment, technology and deployment decisions as it plans to restore, expand and upgrade its fixed broadband network. It will also inform ESC administrators on whether the market in Puerto Rico justifies the investment for deploying the ESC.

If successful, Aeronet plans to seek market trial authority to gain information on consumer acceptance of broadband using 3.5 GHz spectrum.

Description of Trial

Aeronet plans to trial Cambium Networks transmission equipment from twelve locations. Power limits and out-of-band emission limits will conform to the Part 96 rules

for Category B CBSDs that the Commission adopted in the *CBRS Order* and the Order on Reconsideration and Second Report and Order.¹

Aeronet will conduct the experiment in its existing area of operations in the San Juan area of Puerto Rico. Aeronet has access to and is transmitting from existing towers and operation in this area with personnel on site to monitor deployment and operation, which will ensure that there will be no harmful interference to Incumbent Access users, and to remedy harmful interference in the unlikely event it occurs. Commission records show that there are no Fixed Satellite earth stations in the 3600-3650 MHz band operating near the test area.² Likewise, there appear to be no ground-based radar facilities in or near the planned trial area that would require ESC or coordination with incumbents.³

To the extent necessary, consistent with its current experimental license, Aeronet agrees to accept the following special conditions on its experimental STA:

- (1) Licensee shall be aware that FSS earth stations are licensed on these frequencies and if any interference occurs, the experimental licensees of this authorization will be subject to immediate shut down.
- (2) Aeronet Wireless Broadband LLC must coordinate with the Arecibo Observatory prior to operations, Angel Vazquez, angel@naic.edu, phone: (787) 878-2612 ext. 304.

Contribution to the Radio Art

In accordance with Section 5.63(c)(1), Aeronet expects that the trial will add to what had been learned in the previous STA and inform the development of the ESC for deployment in Puerto Rico, and will further contribute to the radio art. The CBRS is a new service in which commercial and Federal uses will share a spectrum band, with use governed by an SAS and ESC. In connection with its market trial, Aeronet expects to learn a significant amount of information about equipment capabilities and limitations, interference protection and mitigation, customer acceptance at various speeds and price points, and integration of its service and equipment with the SAS and ESC. Because Aeronet will make test data available to Cambium Networks, the manufacturer also will gain important information that can be used to improve equipment performance and development.

¹ See *Amendment of the Commission's Rules with Regard to the 3550-3650 MHz Band*, Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011 (2016).

² See *Amendment of the Commission's Rules with Regard to the 3550-3650 MHz Band*, Notice of Proposed Rulemaking and Order, 27 FCC Rcd 15594 (2012), at Appendix A.

³ See Letter dated from Paige R. Atkins, NTIA, to Julius P. Knapp, FCC, GN Docket No. 12-354 (dated March 24, 2015), at Enclosures 1 and 2.