

Explanatory Statement – Request for Experimental STA

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 experimental Special Temporary Authority (“STA”) to conduct an antenna technology trial using spectrum in the 3450-3550 MHz band transmitting from five existing access point locations in the San Juan, Puerto Rico area. Aeronet requests an STA term of six (6) months commencing April 15, 2022.

Background

Aeronet is a fixed wireless service provider that provides broadband service to approximately 15,000 customers in Puerto Rico. It relies on a combination of unlicensed and lightly licensed spectrum and fiber optics to provide these services. Aeronet has previously obtained experimental authority to conduct trials using similar equipment in the upper adjacent frequency band from 3550-3650 MHz (Call Signs WN9XVT and WQ9XOX). Aeronet is seeking additional authority to evaluate equipment capability in other frequencies in connection with its efforts to offer expanded fixed wireless services in Puerto Rico, making use of available spectrum not currently licensed for mobile or fixed use on the island. In this regard, no flexible-use licenses for Puerto Rico were included in the Commission’s recent auction of 3.45 GHz spectrum in Auction 110, which concluded a few weeks ago.¹

Aeronet intends to experiment with access point and customer premise equipment (“CPE”) on the Cambium Networks platform. Based on its prior testing program, Aeronet believes that additional mid-band spectrum may offer consumers the best combination of high throughput, propagation, cost, and performance in areas where access to competitive broadband services is lacking.

Trial Objectives

Aeronet has identified the following objectives of the proposed trial:

- Test RF propagation characteristics in line-of-sight and non-line-of-sight environments.
- Test 40-megahertz channel carrier aggregation capability and performance.
- Validate ability to offer high-speed broadband connectivity.

¹ See, e.g., FCC Public Notice, “Auction of Flexible-Use Service Licenses in the 3.45–3.55 GHz Band for Next-Generation Wireless Services,” DA 21-655, 36 FCC Rcd 9272, 9276 n.15 (OEA/WTB 2021) (“At this time, the Commission will not issue flexible-use licenses for the following PEAs: Honolulu, Anchorage, Kodiak, Fairbanks, Juneau, *Puerto Rico*, Guam-Northern Mariana Islands, U.S. Virgin Islands, American Samoa, and the Gulf of Mexico (PEAs numbers 42, 212, 264, 298, 360, 412–416)”) (emphasis added).

- Compare performance with equipment used in other trials and in other frequency bands.

Overall, the proposed STA operations will provide Aeronet with additional information to help make its future equipment, expansion, and network investment plans. Cost-effective equipment is an important factor in Aeronet's future deployment decisions as a fixed wireless broadband provider.

In order to meet the defined objectives of the trial, Aeronet seeks a new STA to use spectrum in the 3450-3550 MHz band, transmitting from the five access point locations identified in this application. Aeronet plans to deploy Cambium Networks equipment 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.

Description of Trial

Aeronet plans to trial Cambium Networks transmission equipment from five locations in its existing area of operations in the San Juan area of Puerto Rico. It understands that other users are licensed on these frequencies and if any interference occurs, the experimental licensees of this authorization will be subject to immediate shut down. 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 that it is able to remedy any harmful interference in the unlikely event it occurs.

Aeronet will carefully track important data, such as capacity, speed, signal propagation, and range to determine the utility of the Cambium equipment for future, broader scale operations. This program of experimentation has the promise to contribute to the advancement of fixed wireless technology that could significantly improve the consumer broadband experience, particularly in areas of Puerto Rico where service falls below desired speed and capacity metrics

Deployment Parameters

This application for experimental Special Temporary Authority proposes operation from five sites. Specific parameters of proposed operation are detailed in the chart below:

Location 1 – Claro SP	
Coordinates	18-24-42.63 N/ 66-05-38.03 W
Beam Width	90° V 8° H
Azimuth	0°, 90°, 180° and 270°
Orientation in Vertical Plane	4°

Location 2 – CC Montehiedra	
Coordinates	18-20-46.65 N / 66-4-17.74 W
Beam Width	90° V 8° H
Azimuth	0°, 90°, 180° and 270°
Orientation in Vertical Plane	4°

Location 3 – SBA Coqui	
Coordinates	18-20-28.90 N / 66-03-20.73 W
Beam Width	90° V 8° H
Azimuth	0°
Orientation in Vertical Plane	4°

Location 4 – SBA Efron (Dorado)	
Coordinates	18-27-18.60 N / 66-17-24.07 W
Beam Width	90° V 8° H
Azimuth	0°, 90°, 180° and 270°
Orientation in Vertical Plane	4°

Location 5 –Filtros (Guaynabo)	
Coordinates	18-22-38.66 N /66-07-0.91 W
Beam Width	90° V 8° H
Azimuth	0°, 90°, 180° and 270°
Orientation in Vertical Plane	2°

Additionally, the trial will deploy up to 170 end users located within a 5 mile radius of the fixed locations, with maximum power of 250 mW and 4.0 W ERP.