

White Cloud Communications, Inc. Supporting Statement

Pursuant to Section 5.63(c)(1) of the Commission's Rules, White Cloud Communications, Inc. ("White Cloud") hereby provides this statement in support of its application for an experimental license to conduct a market trial, as defined in Sections 5.5 and 5.602, using spectrum in the 3550-3650 MHz band transmitting from four of White Cloud's towers in rural Southern Idaho. As further described below, White Cloud plans to test whether and to what extent LTE technology deployed in the 3550-3650 MHz band can provide high-speed, high-throughput broadband service to educational facilities, residences and businesses in remote public school districts to improve access and educational opportunities to nearby rural communities.

White Cloud requests a license term of the shorter of (a) two (2) years from grant of the application, or (b) White Cloud's grant of authority from a Spectrum Access System ("SAS") and Environmental Sensing Capability ("ESC") to operate the authorized equipment and facilities on a General Authorized Access ("GAA") basis.

Overview

White Cloud was founded more than 35 years ago in the Magic Valley of Idaho. White Cloud is a privately held communications company owned by Joseph Shelton. The Company has offices in Twin Falls, Burley, Ketchum and Boise and operates nine sites throughout the State of Idaho.

White Cloud began as a Motorola dealership and has remained a leader in the Motorola indirect sales and service network. It currently owns and operates over 30 communication towers that are used to provide two-way radio, cellular, wireless internet, and networking throughout Idaho and the Pacific Northwest. Relying on licensed, unlicensed and "lightly licensed" 3650-3700MHz spectrum, White Cloud provides wireless internet services through its network of towers throughout Southern Idaho and delivers fixed wireless connectivity to farms, dairies, factories, businesses and residential customers. White Cloud also provides managed services networks via a 10-year contract to the Idaho National Labs, Department of Energy that serves police, fire, EMS, and security.

White Cloud was awarded the Regional Center for Excellence with Harris Corporation for the nine Pacific Northwest states. This center for excellence is the distribution point for all Harris and Tait communication equipment in this area. The Company also was awarded the design, install, and service of the Twin Falls 911 center which was completed in 90 days and which the Company maintains to this date.

Under its 3650-3700 MHz license (Call Sign WQMH620), White Cloud has registered in ULS more than 90 base stations. Based on its vast experience, White Cloud has determined that, in many areas, LTE technology in the 3650-3700 MHz band

offers the best combination of throughput, propagation, cost and equipment solutions to deliver high-quality broadband service to educational facilities and surrounding rural communities where access to competitive broadband services is lacking. This application is supported by the attached letters from the school districts that would benefit from the market trial.

White Cloud believes that the *CBRS Order*,¹ along with the ongoing development of the SAS and ESC, represents a positive change in spectrum management policy, and will eventually result in extremely efficient and widespread use of 150 megahertz of spectrum in the Citizens Broadband Radio Service (“CBRS”) for fixed wireless broadband in rural and underserved locations.

In addition, the equipment market is evolving to a standards-based LTE platform that relies on software-defined base station radios and encompasses a large, rapidly developing global equipment and technology ecosystem. Because of these attributes and the future ability to operate within the 150 megahertz between 3550-3700 MHz, White Cloud intends to continue deploying in the 3650-3700 MHz band to improve the customer experience and to expand its operations. To date, there is no Part 90 certified equipment that incorporates the functionality needed to comply with new Part 96 requirements, partially due to the fact that there is no certified SAS and ESC, and the technical specifications for the SAS and ESC are still under development.²

In order to determine the financial and technical viability of the CBRS band and assess coverage, throughput and performance, White Cloud seeks an experimental license to use spectrum in the 3550-3650 MHz band from four of its towers in Southern Idaho. The school districts surrounding these towers lack high-speed, high-throughput fixed broadband access. White Cloud plans to use Telrad LTE equipment on an experimental basis to determine whether and to what extent deployment in the 3550-3650 MHz band can reach these rural areas. In sum, this experiment will improve the short-term benefits to the surrounding school districts and inform White Cloud’s future plans for expansion of its broadband network.

Description of Program

Because the Commission has not yet certified equipment for use with the SAS or the ESC in the CBRS band, White Cloud plans to use Telrad LTE equipment certified by the FCC for use in the 3650-3700 MHz band that is re-tuned to the 3550-3650 MHz band. Power limits and out-of-band emission limits will conform to the Part 96 rules for

¹ See *Amendment of the Commission’s Rules with Regard to the 3550-3650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959 (2015) (“*CBRS Order*”).

² See <http://www.wirelessinnovation.org/spectrum-sharing-committee> (last visited Feb. 11, 2016).

Category B CBSDs that the Commission adopted in the *CBRS Order* and the Order on Reconsideration and Second Report and Order.³

White Cloud owns the four towers and has access to and is transmitting on other frequencies from those towers, and has personnel on site to monitor construction and operation, to 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 anywhere in the vicinity of the trial locations.⁴ There also appears to be no ground-based radar or coastal exclusion zones in or near the planned trial areas that would require ESC or coordination with incumbents. White Cloud notes that its proposed operations lie near the boundary of the coastal exclusion zone identified by NTIA.⁵

White Cloud plans to test LTE technology in the 3550-3650 MHz to determine whether the spectrum can serve the needs of students and families within the footprints of its towers. As part of the trial, White Cloud will test for coverage, capacity and speed at different price points to determine the utility and value of the CBRS to inform White Cloud's future plans. Over time, White Cloud may test with different equipment as it becomes available. Consistent with the market trial requirements of Section 5.602(d), White Cloud will own the CBSD and End User Device equipment, and will not transfer ownership to trial participants. White Cloud seeks authority to deploy up to four base stations consisting of eight CBSD sectors each and up to 80 End User Devices, which it believes is the minimum quantity necessary to conduct the two-year trial proposed in this application due to the need to measure performance and the integration of the Telrad equipment with the SAS and ESC.

White Cloud plans to conduct its trial in two phases. In the first phase, White Cloud will deploy with equipment certified for use in the 3650-3700 MHz band in accordance with the technical showing of this application. In the second phase, which will begin when SAS and ESC testing is viable with at least one party, White Cloud will incorporate experimental SAS/ESC integration of equipment into the trial.

Objectives of Experimental Program

During the trial, and prior to the certification of a SAS and ESC, White Cloud will comply with the power levels in Section 96.41 as they apply to End User Devices and Category B CBSDs. At the conclusion of the requested experimental license term,

³ See *Amendment of the Commission's Rules with Regard to the 3550-3650 MHz Band*, Order on Reconsideration and Second Report and Order, GN Docket No. 12-354, FCC 16-55 (rel. May 2, 2016).

⁴ See *Amendment of the Commission's Rules with Regard to the 3550-3650 MHz Band*, Notice of Proposed Rulemaking and Order, GB Docket No. 12-354, 27 FCC Rcd 15594 (2012), at Appendix A.

⁵ See Letter dated from Paige R. Atkins, NTIA, to Julius P. Knapp, FCC, GN Docket No. 12-354 (dated March 24, 2015), at Enclosure 1.

White Cloud will either transition to Part 96 GAA if equipment is certified and authorized under GAA rules or, if not, cease operation in 3550-3650 MHz. White Cloud hopes that the equipment and SAS/ESC development can be accelerated through the information generated by the market trial.

The experiment will examine the impact of the following rules on potential future commercial deployments.

Section 96.15 - Validate ability to comply through dynamic frequency changes across a geographically clustered collection of CBSDs, planned and executed within 300 seconds of a simulated command to vacate an occupied channel.

Section 96.17 – Validate propagation models ability to predict co-channel interference, blocking, and OOB to comply with protections of existing Incumbent Access users.

Section 96.21 - Validate propagation models ability to predict co-channel interference, blocking, and OOB to comply with protections of Grandfathered Wireless Broadband Licensees.

Section 96.25 – Validate propagation model's ability to predict compliance with PAL Protection Areas.

Section 96.39(d), (e) – Develop methods for collecting Signal Level and Frequency information from the CBSD so it can be reported to the SAS.

Section 96.41 – Determine the appropriate power levels for CBSD and End User Devices to both comply with this section and achieve desired coverage and performance. The aggregate RMS power level RSS and PAPR requires measurement validations in a real world environment where CBSD and End User Device density is consistent with intended long term use of the band. Propagation models must be tuned and validated to accurately predict compliance. Power level control of the equipment must be tuned so that the CBSD and End User Device transmit at the lowest power levels possible to meet performance objectives, while complying with the prescribed limits.

Section 96.53 – Develop methods to detect interference at the CBDS and End User Device from other GAA and PAL users so it can be reported to the SAS and ESC.

Ownership of Trial Equipment

As required by Section 5.602(e), all end users will be advised at the commencement of the trial that service is being provided on a trial basis, that any non-approved devices are for testing only and that all equipment must be returned at the end of the trial period. White Cloud further acknowledges that it will retrieve the end

user devices from the users at the end of the trial. In particular, all end users will be notified that the service they will be receiving is being provided in part or in whole under experimental authority, and that as a condition of the experimental license, White Cloud may be required at any time, without prior notice, to cease operations in the 3550-3650 MHz band. In addition, White Cloud acknowledges and will notify users that all customer premise equipment authorized under the experimental license remains the property of White Cloud, and must be collected or rendered inoperable at the conclusion of the trial. At the end of the trial, White Cloud will either: (1) shut off the service immediately, stop billing users for the service and post a public notice at White Cloud's website, and collect or render all customer premise equipment inoperable, or (2) change the frequency and operating parameters of some or all of the customer premise equipment that is part of the trial to parameters authorized under Part 90, Subpart Z of the FCC rules (which may materially impact network capacity, performance, and quality of service), post a public notice to White Cloud's website, and allow users to opt out of the modified service offering with no further obligation to pay for the service.

Contribution to the Radio Art

In accordance with Section 5.63(c)(1), White Cloud expects that its market trial will contribute greatly 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. It has been characterized as a test-bed for innovation and as a paradigm shift in spectrum management. In connection with its market trial, White Cloud 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. To the extent permitted by SAS and ESC administrators and equipment providers, White Cloud will share the results of its market trial with the Commission.

In the initial phase of the experiment White Cloud will operate from four base stations. At each location, White Cloud will operate on a specific 20 MHz band, with antennae oriented toward 0°, 120° and 240° azimuths. The chart below provides specific information.

Site Name	Coordinates	Beam Width	Orientation (vertical plane)	Orientation (horizontal plane)	Frequency Band
Blick Hill 865 E. 3900 N. Buhl, ID	42-31-58 N 114-51-02 W	65°	0°, 120° and 240°	2°	3550-3570 MHz
Indiana 13634 Indiana Avenue B Nampa, ID	43-34-03 N 116-40-24 W	65°	0°, 120° and 240°	2°	3560-3580 MHz
Jerome 79 N.529 E. Jerome, ID	42-44-02 N 114-25-10 W	65°	0°, 120° and 240°	2°	3570-3590 MHz
Squaw Butte 3.2 km North of Emmett	44-00-16 N 116-24-41 W	65°	0°, 120° and 240°	2°	3590-3610 MHz