

CellTex Networks, LLC dba Zip Link
Statement in Support of Experimental License

CellTex Networks, LLC dba Zip Link (“Zip Link”) provides this statement pursuant to Section 5.63(c)(1) of the Commission’s Rules 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 designated locations in Bexar and Wilson counties in Texas. Zip Link requests a license term equal to the shorter of (a) two (2) years from grant of this application, or (b) Zip Link’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

Zip Link is a fixed wireless broadband provider that holds a nationwide non-exclusive 3650-3700 MHz service license (Call Sign WQLL980). In addition to using this license to provide last-mile fixed broadband service to customers, Zip Link also uses unlicensed spectrum in the 5 GHz band. Zip Link currently provides broadband service to approximately 2,200 residential and business subscribers in rural areas southeast of San Antonio, Texas.

Zip Link has deployed in the 3650-3700 MHz band using both proprietary equipment and LTE equipment. The LTE equipment uses software-defined radios that can be turned to operate in the 3550-3650 MHz band and, ultimately, configured to operate with the SAS and ESC that are under development. Based on its experience, Zip Link believes that LTE technology deployed in the 3550-3700 MHz band offers the best combination of throughput, propagation, cost and equipment to deliver high-quality broadband service to its subscribers and others in the target markets that lack access to competitive broadband services.

In this trial, Zip Link plans to test LTE equipment manufactured by different companies. This will enable Zip Link to gain a better understanding of the benefits, challenges and costs associated with near-term deployment of LTE equipment in the 3650-3700 MHz band as well as for the Citizens Broadband Radio Service (“CBRS”). For example, some manufacturers may be able to provide LTE equipment at a lower cost than its competitors, but may not perform as well. Understanding the balance between cost and performance will significantly inform Zip Link’s business decisions, for the benefit of its own financial modeling and consumers who will be offered a better service. Zip Link also plans to experiment with various speed and pricing plans to assess consumer acceptance of the service. If the trial is technologically successful and beneficial to consumers, Zip Link will realize significant cost savings and improved performance.

The trial will provide Zip Link with information to help make its future expansion and network investment plans. Assuming the trial is successful, Zip Link expects to utilize a combination of Priority Access Licenses (“PAL”) and GAA “license by rule” spectrum across the entire 150 megahertz of 3550-3700 MHz spectrum. However, 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.

Zip Link 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 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.

In order to determine the financial and technical viability of the CBRS band and assess consumer acceptance at various speeds and price points, Zip Link seeks an experimental license to use spectrum in the 3550-3650 MHz band in the Bexar and Wilson counties, transmitting from the sites identified in this application. These areas include significant rural areas where consumers lack choice in broadband access. Zip Link is using all available 3650-3700 MHz spectrum in these areas such that further deployment in that band would result in harmful self-interference. Zip Link plans to use LTE equipment from various manufacturers on an experimental basis to determine the market potential resulting from an additional 100 megahertz of low-band spectrum. In sum, this experiment will inform Zip Link's business, investment, technology and deployment decisions as it plans to expand and upgrade 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, Zip Link plans to use 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 Category B CBSDs that the Commission adopted in the *CBRS Order* and the Order on Reconsideration and Second Report and Order.²

Zip Link will conduct the experiment in its existing network area. Zip Link has access to and is transmitting on other frequencies from existing towers and operation in this area with 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 also show that there are no Fixed Satellite earth stations in the 3600-3650 MHz band operating anywhere near the test area.³ Likewise, there appear to be no

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 *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) .

³ 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. The Call Signs are E980493 at Catawissa, PA and KLA444 at Roaring Springs, PA. To the extent necessary, Zip Link will accept a condition on its experimental license that would require it to notify FSS licensees operating in

ground-based radar in or near the planned trial area that would require ESC or coordination with incumbents, and the area where the trial will be conducted lies outside of the coastal exclusion zone.⁴

Under the market trial aspect of the experiment, Zip Link plans to test different equipment, broadband speeds and price points to determine the utility and value of the CBRS as it relates to consumer take rates and network performance. Consistent with the market trial requirements of Section 5.602(d), Zip Link will own the access point and customer premise equipment, and will not transfer ownership to trial participants. Zip Link seeks authority to deploy across the entire network and serve up to 1,000 end users, 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 equipment with the SAS and ESC.

Objectives of Experimental Program

During the trial, and prior to the certification of a SAS and ESC, Zip Link will comply with the power levels in Section 96.41 as they apply to End User Devices and Category B CBSDs. Zip Link has also carefully designed its experimental system to minimize signal that could extend across the boundary of the coastal exclusion zone or to areas where harmful interference to earth stations would be expected to occur. At the conclusion of the requested experimental license term, Zip Link 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. Zip Link hopes that the equipment and SAS/ESC development can be accelerated through the information generated by the market trial.

In addition to the technical objectives, Zip Link will test to determine the value and utility of PALs, which necessitates charging for the service at varying price points and performance levels. The trial will also provide Zip Link with information that may be useful in bidding on PALs.

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 model’s ability to predict co-channel interference, blocking, and OOB to comply with protections of existing Incumbent Access users. This will also be useful to assess protection of PAL users by GAA users.

the 3550-3700 MHz band within a 20 kilometer radius of the locations from which experimental operations will be conducted.

⁴ 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.

Section 96.21 - Validate propagation model's ability to predict co-channel interference, blocking, and OOBE to comply with protections of grandfathered FSS earth stations and any Grandfathered Wireless Broadband Protection Zones.

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

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 CBSD and End User Device from other GAA and PAL users so it can be reported to the SAS and ESC.

Notice to Consumers

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. Zip Link 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, Zip Link may be required at any time, without prior notice, to cease operations in the 3550-3650 MHz band. In addition, Zip Link acknowledges and will notify users that all customer premise equipment authorized under the experimental license remains the property of Zip Link, and must be collected or rendered inoperable at the conclusion of the trial. At the end of the trial, Zip Link will either: (1) shut off the service immediately, stop billing users for the service and post a public notice at ziplinkinternet.com, 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 ziplinkinternet.com, 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), Zip Link expects that the 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, Zip Link 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 Zip Link will make test data available to the equipment manufacturers, the manufacturers also will gain important information that will improve equipment performance and development. To the extent permitted by SAS and ESC administrators and equipment providers, Zip Link will share the results of its market trial with the Commission.