Digis LLC
Narrative Statement

Pursuant to Section 5.63(c)(1) of the Commission's Rules, Digis LLC dba Rise Broadband ("Rise Broadband") hereby provides this narrative 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 in Utah County, Utah. Rise Broadband requests a license term of the shorter of (a) two (2) years from grant of the application, or (b) within 90 days following the certification and operation of a Spectrum Access System ("SAS").

Overview

Rise Broadband is a fixed wireless broadband provider that holds nationwide non-exclusive 3650-3700 MHz service licenses. Among its various sister companies, all of which are subsidiaries of JAB Wireless, Inc., Rise Broadband delivers service to approximately 200,000 residential and business subscribers in 16 states with a focus on rural and previously underserved locations. Rise Broadband uses a wide array of unlicensed spectrum, licensed spectrum in the 2.5 GHz band and "lightly licensed" spectrum in the 3650-3700 MHz band. Over time, Rise Broadband has determined that, in many areas, the 3650-3700 MHz band offers the best combination of throughput, propagation, cost and equipment solutions to deliver high-quality broadband service to its subscribers and others in the target markets that lack access to competitive broadband services.

Rise Broadband, through the Wireless Internet Service Providers Association ("WISPA"), has supported the creation of the Citizens Broadband Radio Service ("CBRS"), including the inclusion of the 3650-3700 MHz band, with the hopes that adequate protections and policy would be adopted to facilitate a smooth transition from the Part 90 to the Part 96 rule framework. Rise Broadband believes that the *CBRS Order*,[1] along with the ongoing proceeding regarding protected contours for non-federal incumbent users,[2] 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 low power macro cell technologies 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, Rise Broadband has made a substantial financial commitment to deploy in the 3650-3700 MHz band for new areas and to

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[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 Public Notice*, "Wireless Telecommunications Bureau Seeks Comment on an Appropriate Method for Determining the Protected Contours for Grandfathered 3650-3700 MHz Band Licensees," GN Docket No. 12-354, DA 15-1208 (rel. Oct. 23, 2015) ("*Public Notice*").

upgrade existing unlicensed operations to the 3650-3700 MHz band to improve customer experience and better compete. Over time, Rise Broadband expects to utilize a combination of Priority Access Licenses ("PAL") and General Authorized Access ("GAA") "license by rule" spectrum across the entire 150 megahertz of spectrum.

Rise Broadband is making its financial and deployment commitment after lengthy discussions with manufacturers that are developing software-defined equipment that will enable equipment and service to be transitioned to PAL and GAA in a cost-effective manner by avoiding the need for expensive equipment replacements at base stations and truck rolls to subscriber locations to change out customer premise equipment ("CPE").[3] 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.[4]

In order to determine the financial and technical viability of the CBRS band and assess consumer acceptance at various speeds and price points, Rise Broadband seeks an experimental license to use spectrum in the 3550-3650 MHz band in Utah County, Utah. This experiment will inform Rise Broadband's business, investment, technology and deployment decisions as it plans for expansion and densification of its broadband networks.

Description of Program

Because the Commission has not yet certified equipment for use with the SAS or the Environmental Sensing Capability ("ESC") in the CBRS band, Rise Broadband plans to use 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 recently adopted Order on Reconsideration and Second Report and Order.[5]

Rise Broadband has identified Utah County, Utah as the optimum place to conduct the market trial experiment. Rise Broadband has existing towers and operation in Utah County with personnel on site to monitor construction and operation, to ensure that there will no harmful interference to Incumbent Access users and to remedy harmful interference in the unlikely event it occurs. Further, there appears to be no ground-based radar in or near the planned trial area that would require ESC or coordination with incumbents. Commission records also show that there are no Fixed Satellite earth stations in the 3600-3650 MHz band operating anywhere in the vicinity of the trial location.[6]

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[3] *See, e.g.*, https://fccid.io/Q78-R8984ES3600.

[4] *See* http://www.wirelessinnovation.org/spectrum-sharing-committee (last visited Feb. 11, 2016).

[5] *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).

[6] *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 Rcd15594 (2012), at Appendix A.

Pursuant to this market trial, Rise Broadband plans to test different broadband speeds and price points to determine the utility and value of the CBRS as it relates to consumer take rates and network performance. Over time, Rise Broadband plans to test with different equipment as it becomes available. Consistent with the market trial requirements of Section 5.602(d), Rise Broadband will own the CBSD and End User Device equipment, and will not transfer ownership to trial participants. Rise Broadband seeks authority to deploy up to 20 base stations consisting of 3 to 4 CBSD sectors each and up to 2,000 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 aggregate signal levels at the edge of a Census Tract or Wireless Protection Zone. 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 and that all equipment must be returned at the end of the trial period.

Rise Broadband plans to conduct its trial in two phases. In the first phase, Rise Broadband will deploy with equipment certified for use in the 3650-3700 MHz band, and operating in 3550-3650 MHz band at various architectures and speeds. In the second phase, which will begin when SAS and ESC alpha and beta testing is viable with at least one party, Rise Broadband will incorporate experimental SAS/ESC integration of equipment into the trial.

Objectives of Experimental Program

Rise Broadband anticipates working with more than one equipment vendor and more than one SAS vendor. During the trial, and prior to the certification of a SAS and ESC, Rise Broadband 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, Rise Broadband 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. Rise Broadband 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, the objective of determining the value and utility of PALs exists, which necessitates charging for the service at varying price points and performance levels.

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 OOBE to comply with protections of existing FSS Earth Stations.

Section 96.21 - Validate propagation models ability to predict co-channel interference, blocking, and OOBE 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(a) – Develop a method for determining CBSD locations with sufficient accuracy to comply with this section.

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.

Contribution to the Radio Art

In accordance with Section 5.63(c)(1), Rise Broadband 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, Rise Broadband expects to learn a significant amount of information about equipment capabilities and limitations, 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, Rise Broadband will share the results of its market trial with the Commission.