

## Request for Experimental Station Authorization

DigitalBridge Spectrum Corp. (DBC)<sup>1</sup> hereby seeks temporary authorization to perform a limited market study<sup>2</sup> for a period of 12 months on vacant Broadband Radio Service (BRS) spectrum to test a fully mobile, WiMAX-compliant 802.16e system in Richmond, Indiana, a rural community DBC presently serves with a fixed WiMAX system. Submitted pursuant to Section 5.63 of the FCC's rules,<sup>3</sup> this supplementary statement explains the complete details about DBC's proposed operation, a description of the equipment, and the specific objectives. DBC respectfully requests expedited review and grant of its request to perform a limited market study.

DBC proposes to test a fully mobile, WiMAX-compliant 802.16e system utilizing 8 vacant BRS channels at five separate sites. At each site, Applicant will install one, three sector base station with up to 4 Watts of transmit power per sector covering approximately an eleven kilometer radius. Applicant will use Time Division Duplex (TDD) technology that will both transmit and receive on a 5 or 10 MHz channel. DBC's proposed tests will determine which is more efficient. DBC will utilize WiMAX-compliant 802.16e equipment by Alvarion.<sup>4</sup> DBC testing will include the following:

- procedure for software and configuration upgrade to customer premise equipment;
- propagation analysis of 2<sup>nd</sup> and 4<sup>th</sup> order diversity sectors;
- throughput testing of mobile and nomadic devices across all available modulation levels;
- frequency reuse capabilities and self-interference analysis;
- aggregate sector throughput testing;
- intra-base-station and inter-base-station mobile handover performance; and
- quality of service tests to validate the ability to deliver voice and video applications.

Alvarion's WiMAX-compliant 802.16e equipment utilizes the IEEE 802.16e standard. In addition to the increased benefits of mobility, this equipment will provide a higher broadband capacity and ability to serve more customers in the market. It will also provide the ability to support 802.16e standardized devices at a reduced cost, increased availability to subscribers, and the capability to provide roaming between other 802.16e networks.

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<sup>1</sup> It is DBC's mission to use wireless broadband technology, WiMAX, to bring advanced wireless broadband services to rural and underserved communities nationwide. DBC's mission and execution are unique in the U.S. today. Since launching service in 2007, DBC has deployed wireless broadband services in 14 rural communities. Today, DBC serves over 20,000 rural subscribers with wireless broadband, wireless voice and wireless video service.

<sup>2</sup> 47 C.F.R. §§5.3(j), 5.93.

<sup>3</sup> 47 C.F.R. §5.63.

<sup>4</sup> Equipment specifications are attached to this application.

The FCC's rules allow experimental testing, such as the tests Applicant proposes, for the purpose of performing limited market studies.<sup>5</sup> The FCC's rules allow testing for a period of either two or five years.<sup>6</sup> Applicant believes, however, it can achieve the necessary test results within a 12 month period.<sup>7</sup>

As required by the FCC's limited market study rule, Applicant owns all the equipment that will be utilized in its tests.<sup>8</sup> Applicant will also inform all participants in the testing that the service or device is granted under an experimental authorization and is strictly temporary.<sup>9</sup> As a part of its request for experimental authorization, Applicant also requests an exemption from the FCC's station identification rule.<sup>10</sup> Section 5.115 of the FCC's rules requires that an experimental station transmit its assigned call sign at the end of the each complete transmission in clear voice or Morse code. Similar to all other digital cellular technology, Applicant's proposed digital cellular equipment is incapable of station identification in accordance with Section 5.115. Therefore, Applicant requests that the terms of its experimental authorization provide an exemption from the FCC's station identification rule.

In addition to the technical benefits of DBC's proposed test and limited market study, public interest justifies grant of the requested experimental authorization. The test and limited market study to be undertaken by DBC will enhance the development, extension, utilization and adoption of mobile WiMAX technology in rural, heavily treed areas. It will be the first deployment of its kind in the rural Midwest.

In June of 2008, DBC launched its first commercially available mobile WiMAX network using WiMAX-compliant 802.16e equipment in Jackson Hole, Wyoming. In this request, DBC seeks authority to use vacant E-group and F-group BRS spectrum in Richmond, Indiana, a community in which DBC already offers fixed wireless broadband service, to try to replicate its successful mobile WiMAX service in Jackson Hole. A test is needed because the Richmond market has entirely different propagation characteristics, and DBC wants to ensure the viability of a mobile WiMAX service before disrupting the current fixed WiMAX service that is operational in Richmond on the D-group. If the tests are successful, DBC will deploy a mobile WiMAX network in at least three underserved communities in Indiana, including Richmond, Liberty and Connersville. In Jackson Hole, it took DBC 4-5 months to achieve the necessary test results to determine whether the mobile WiMAX service was viable. The proposed tests in Richmond, Indiana will likely take longer because of the challenging terrain in Indiana, including more limited line of site and greater environmental obstacles like trees and hills. A minimum of 12 months is needed to test and vet a mobile WiMAX offering in Richmond, Indiana.

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<sup>5</sup> 47 C.F.R. § 5.93.

<sup>6</sup> 47 C.F.R. § 5.71.

<sup>7</sup> 47 C.F.R. § 5.71(b).

<sup>8</sup> 47 C.F.R. § 5.93(a).

<sup>9</sup> 47 C.F.R. § 5.93(b).

<sup>10</sup> 47 C.F.R. § 5.115.

At this time, DBC only has access to the D-group channels in Richmond, which it leases from Ball State University (Ball State). The excess capacity leased to DBC on this channel group is fully utilized and provides the current generation of WiMAX wireless broadband service – a fixed service – to the community. These channels cannot be used, simultaneously to test a mobile WiMAX service in Indiana. However, there is ample vacant spectrum in Richmond, Indiana, including the E-group and F-group channels. There is no BTA license holder in the Richmond, Indiana BTA (BTA 373). There is only one licensee, Ball State, in BTA 373 and DBC currently leases this spectrum. DBC is the only broadband provider with operations in the Richmond, Indiana area and several surrounding markets. If this request is expeditiously granted, DBC's objective is to test the mobile WiMAX service before the FCC concludes any potential future auction for vacant BRS spectrum. No process has yet begun for such an auction.

In addition to testing the limits of current mobile WiMAX technology in a rural, heavily-treed environment, the test and limited market study has the potential to reap substantial benefits for the consumers of Richmond, Indiana. DBC is already providing fixed wireless broadband services to almost 1,000 customers in Richmond. DBC sales in Richmond have been very strong, as the other broadband providers in the area have limited coverage, poor service quality, and high prices. This test and limited market study will bring to Richmond the same advanced, wireless WiMAX services that residents of more populated areas already enjoy. DBC plans to deploy in rural markets the mobile services that are similar to the services Clearwire has deployed in Baltimore, Chicago, Portland and Washington, D.C.<sup>11</sup> Mobile wireless broadband will be deployed in the 2.5 GHz band nationwide,<sup>12</sup> and DBC wants its systems and its customers to be ready for this next generation of service when it is nationally deployed.

There is sufficient precedent for the FCC allowing use of fallow 2.5 GHz spectrum to provide wireless broadband service in rural areas.<sup>13</sup> In addition, no other licensee would be negatively affected by granting DBC this experimental license. In order to identify spectrum for the test that poses the least amount of interference concerns, DBC prepared an engineering study of available spectrum post-transition in Richmond, Indiana. The attached map shows that most of the Richmond, Indiana spectrum is unused and unencumbered including the E-group and F-group channels on which DBC proposes to test the mobile

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<sup>11</sup> In the Matter of Sprint Nextel Corporation and Clearwire Corporation, Application for Consent to Transfer Control of Licenses, Leases and Authorizations, Memorandum Opinion and Order, 23 FCC Rcd 17570 (2008) (Clearwire Order).

<sup>12</sup> See Clearwire Order at ¶ 42.

<sup>13</sup> See In the Matter of Gateway Telecom LLC d/b/a StratusWave Communications, Applications For New Educational Broadband Service Stations on the A and B Group Channels in Centerville, Ohio; and A and B Group Channels in Arden, West Virginia, Memorandum Opinion and Order, 22 FCC Rcd 15789, ¶ 13 (2007) (StratusWave Order); see also Choice Communications, LLC Request for Special Temporary Authority, ULS File No. 0003487551, granted on October 27, 2008; Board of Trustees of Northern Michigan University Request for Special Temporary Authority, ULS File No. 0003187729, granted on October 23, 2007; Nextel Spectrum Acquisition Corp. Request for Special Temporary Authority, ULS File No. 0002940367, granted on March 21, 2007; Choice Communications LLC, 20 FCC Rcd 10906, ¶ 15 (2005).

WiMAX service. Clearwire is the only other carrier that provides service in adjacent markets in Indiana. Due to the nature of DBC's proposed tests and the location of the testing, DBC can conduct experimental testing without causing harmful interference to adjacent users. Of course, if any interference results from DBC's tests, it would take whatever remedial actions the FCC requires.