

## **Newmax LLC dba Intermax Networks Statement in Support of Experimental License Application**

Newmax LLC dba Intermax Networks (“Intermax Networks”), pursuant to Section 5.63(c)(1) of the Commission’s Rules, provides this statement in support of its application for renewal of its experimental license (Call Sign WJ2XOE) covering a technology and market trial, as defined in Sections 5.5 and 5.602, using spectrum in the 3550-3650 MHz band transmitting from five locations in rural Idaho to a limited number of end users. Intermax Networks requests a renewed license term of one (1) year.

Intermax Networks acknowledges that its existing experimental license under Call Sign WJ2XOE contains a special condition (Condition 7 to the license), which provides that “this license will not be renewed.” It is the applicant’s understanding that this condition was imposed on a number of experimental licenses covering the 3550 to 3700 MHz band as a means of preventing “temporary” market trials from extending for too long a period of time and becoming *de facto* service offerings, as well as to ensure that operations in the band would transition in a timely manner from experimental to regular operation under the FCC’s Citizens Broadband Radio Service (“CBRS”) rules.

In practice, however, this limitation was applied inconsistently, with some applicants being granted up to two years to conduct such trials and expiration dates extending into 2020. *See, e.g.*, Windfield Enterprises LLC dba Kellin Communications, Call Sign WJ2XFB, File No. 0723-EX-CN-2017 (granted March 2, 2018); MetaLINK Technologies, Inc., Call Sign WJ2XHI, File No. 0046-EX-CN-2018 (granted Feb. 22, 2018). In other cases, no such condition was imposed at all on licensees conducting experiments under the “limited market trial” subsection (47 C.F.R. 5.3(j)) of the rules. *See, e.g.*, Union Telephone Company, Call Sign WJ2XTE, File No. 0747-EX-CN-2018 (2-year grant issued Oct. 16, 2018); AT&T Labs, Call Sign WI2XWI, File No. 0127-EX-CM-2018 & 0330-EX-CR-2019 (1-year grant issued July 19, 2018; 3-year renewal issued July 1, 2019). Finally, licensees that were initially granted one-year licenses that were expressly subject to the non-renewal condition have since been granted a one-year renewal in order to continue their assessment of CBRS technology using customer premises equipment. *See, e.g.*, Vivint Wireless, Inc., Call Sign WJ2XKV, File No. 0046-EX-CR-2019 (1-year renewal grant issued Feb. 7, 2019). Such a waiver of the condition prohibiting renewal is entirely appropriate given both the initial delays in the general availability of CBRS equipment for testing and the longer than expected timeframe for implementation of CBRS rules and the certification of the required Spectrum Access System.<sup>1</sup> Accordingly, Intermax Networks requests the same treatment be afforded to this renewal request.

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<sup>1</sup> To the extent required, Intermax Networks would also be willing to accept a conditional grant of authority timed to expire upon the grant to Intermax Networks 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

Intermax Networks is a fixed wireless broadband provider that holds a nationwide non-exclusive 3650-3700 MHz service license (Call Sign WQIU276). Intermax Networks uses this license and unlicensed spectrum to provide last-mile fixed broadband service to nearly 2,900 customers in rural Idaho.

Intermax Networks intends to continue a program of experimentation using software-defined, LTE-based equipment manufactured by Telrad Networks and Baicells, two competing manufacturers. In each case, the equipment can be tuned 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 preliminary research and understanding of the technical rules for CBRS, Intermax Networks believes that LTE-based equipment deployed in the 3550-3700 MHz band may offer consumers the best combination of throughput, propagation, cost and performance in areas where access to competitive broadband services is lacking. By comparing the Telrad and the Baicells equipment, Intermax Networks expects to gain a better “real world” understanding of the benefits, challenges and costs associated with deployment of each manufacturer’s equipment. Understanding the trade-offs between cost and performance will significantly inform Intermax Networks’s business decisions, for the benefit of its own financial modeling and consumers who would be offered better service.

The market trial aspect of this proposal involves up to 170 of Intermax Networks’ customers, which is about six percent of its customer base. Intermax Networks 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, Intermax Networks will be able to determine whether the equipment can be efficiently and economically deployed with high quality performance and which manufacturer (or both) offers the best solution in a given area. The trial has been designed to involve the minimum number of customers and towers to provide Intermax Networks with the information it needs regarding customer demand and preferences.

Overall, this limited trial will provide Intermax Networks with information to help make its future equipment, expansion and network investment plans. Assuming the trial is successful and the CBRS rules are not changed in a manner that effectively prohibits participation by small broadband providers for Priority Access Licenses (“PALs”), Intermax Networks plans to utilize a combination of PAL and GAA “license by rule” spectrum in the entire 150 megahertz of 3550-3700 MHz spectrum.

Intermax Networks believes that the *CBRS Order*,<sup>2</sup> along with the ongoing implementation 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

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<sup>2</sup> 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*”).

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. As a small fixed wireless broadband provider, cost-effectiveness is an important factor in Intermax Networks' future deployment and investment decisions.

In order to determine the financial and technical viability of the CBRS band and assess consumer acceptance at various speeds and price points, Intermax Networks seeks to renew its experimental license to use spectrum in the 3550-3650 MHz band, transmitting from the five locations identified in this application. In sum, this experiment will inform Intermax Networks's business, investment, technology and deployment decisions as it plans to expand and upgrade its fixed broadband network.

### ***Description of Trial***

Intermax Networks plans to trial Telrad and Baicells transmission equipment. 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.<sup>3</sup>

Intermax Networks will conduct the experiment in its existing area of operation in Idaho. Intermax Networks 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 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 near the test area.<sup>4</sup> Likewise, there appear to be no ground-based radar facilities 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 coastal exclusion zones.<sup>5</sup>

Under the market trial aspect of the experiment, Intermax Networks plans to test different equipment, broadband speeds and price points to about six percent of its subscriber base in order to determine the utility and value of the CBRS as it relates to consumer take rates, preferences and network performance. Consistent with the market trial requirements of Section 5.602(d), Intermax Networks will own the access points and any CPE owned by customers will be re-tuned to operate only in the 3650-3700 MHz portion of the band at the conclusion of the trial, unless the equipment can be used to operate in compliance with Part 96 rules at that time.

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<sup>3</sup> 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).

<sup>4</sup> 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.

<sup>5</sup> See Letter dated from Paige R. Atkins, NTIA, to Julius P. Knapp, FCC, GN Docket No. 12-354 (dated March 24, 2015), at Enclosures 1 and 2.

Intermax Networks seeks experimental authority to deploy from five locations, two for the Telrad equipment and three for the Baicells equipment. As stated above, the trial will involve about six percent of Intermax Networks' customer base, which it believes is the minimum quantity necessary to conduct the trial proposed in this application. There are a number of reasons why the trial has been designed in this manner. First, each tower has different topography and line-of-sight features, and Intermax Networks would like to determine the best ratio of coverage and throughput in these disparate environments. Second, Intermax Networks desires to trial with different manufacturers' transmission equipment and CPE as well as different numbers of customers at each location so it can compare performance and evaluate usage trends and congestion points, which are significant factors in network deployment and management that inform equipment purchasing decisions. Third, Intermax Networks expects to receive feedback from trial participants at each of the diverse locations. That input also will inform Intermax Networks on its decisions whether to deploy in CBRS and, if so, what equipment it should deploy, where the equipment should be deployed, and the services it should offer.

### ***Objectives of Experimental Program***

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

In addition to the technical objectives, Intermax Networks 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 Intermax Networks with information that will be useful in valuing and 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 OOBE to comply with protections of existing Incumbent Access users. This will also be useful to assess protection of PAL users by GAA users.

*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 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.

### ***Contribution to the Radio Art***

In accordance with Section 5.63(c)(1), Intermax Networks expects that the trial will contribute to the radio art. The CBRS is a new service in which commercial and Federal users 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, Intermax Networks 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 Intermax Networks will make test data available to both Telrad and Baicells, the manufacturers also will gain important information that can be used to improve equipment performance and development.

### ***Notice to Trial Participants***

As required by Section 5.602(e), all end user customers participating in the trial 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. Intermax Networks 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, Intermax Networks may be required at any time, without prior notice, to cease operations in the 3550-3650 MHz band. In addition, Intermax Networks acknowledges and will notify users that all customer premise equipment authorized under the experimental license must be rendered inoperable in the 3550-3650 MHz band at the conclusion of the trial to the extent the equipment is not useable under Part 96 rules. At the end of the trial, Intermax Networks will either: (1) shut off the service immediately, stop billing users for the service and post a public notice at [www.intermaxnetworks.com](http://www.intermaxnetworks.com), and collect or render

all customer premise equipment inoperable, or (2) change the frequency and operating parameters of some or all of the 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 [www.intermaxnetworks.com](http://www.intermaxnetworks.com), and allow users to opt out of the modified service offering with no further obligation to pay for the service.