

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
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	)	
Amendment of the Commission's Rules with	)	GN Docket No. 15-319
Regard to Commercial Operations in the	)	
3550-3650 MHz Band	)	
	)	
	)	
	)	
Promoting Investment in the	)	GN Docket No. 17-258
3550-3700 MHz Band	)	

**PETITION FOR DECLARATORY RULING OF KEY BRIDGE WIRELESS, LLC**

Key Bridge Wireless LLC (“Key Bridge”) respectfully requests that the Office of Engineering and Technology (“OET”) and Wireless Telecommunications Bureau (“WTB”) (jointly, “OET/WTB”), pursuant to Section 1.2 of the Federal Communications Commission’s (“FCC” or “Commission”) Rules,<sup>1</sup> issue a declaratory ruling to remove uncertainty and clarify discrete aspects of the certification process for “first wave” and “second wave” Citizens Broadband Radio Service (“CBRS”) Spectrum Access System (“SAS”) administrators.<sup>2</sup> Specifically, Key Bridge seeks clarification that OET/WTB, pursuant to Sections 0.241(j) and

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<sup>1</sup> See 47 C.F.R. § 1.2.

<sup>2</sup> See *Wireless Telecommunications Bureau and Office of Engineering and Technology Conditionally Approve Seven Spectrum Access System Administrators for the 3.5 GHz Band*, GN Docket No. 15-319, Public Notice, 31 FCC Rcd 13355 (WTB/OET Dec. 2016) (“*First Wave Public Notice*”) (conditionally approving Key Bridge Wireless, Amdocs, Inc., Comsearch; CTIA-The Wireless Association (CTIA); Federated Wireless; Google, Inc.; and Sony Electronics, Inc. (Sony) as SAS administrators); see also *Wireless Telecommunications Bureau and Office of Engineering and Technology Establish “Second Wave” Deadline for Proposals from Prospective Spectrum Access System (SAS) Administrator(s) and Environmental Sensing Capability (ESC) Operator(s)*, Public Notice, GN Docket No. 15-319, 32 FCC Rcd 2973 (WTB/OET Apr. 2017) (“*Second Wave Public Notice*”) (seeking submissions for second wave SAS administrator applicants).

0.331(f) of the Commission's Rules,<sup>3</sup> have approved and instruct participation in a Cooperative Research and Development Agreement ("CRADA") proposed by the National Telecommunications and Information Administration's ("NTIA") Institute for Telecommunications Science ("NTIA-ITS")<sup>4</sup>, and have approved and instruct payment of the \$120,000 "financial contribution" sought by NTIA-ITS as a prerequisite to participate in the aforementioned CRADA.

Key Bridge views participation in a CRADA, which by definition involves the transfer of technology for the mutual benefit of two cooperating parties, as inconsistent with a "black box" certification test intended to evaluate the performance of a software-based platform without peering into the underlying and highly proprietary SAS architecture. Key Bridge finds the \$120,000 "financial contribution" (\$840,000 in aggregate from the seven first wave SAS applicants) mandated by NTIA-ITS to be excessive given that certification testing is not a cooperative research effort, because NTIA-ITS did not develop the code for the underlying tests,<sup>5</sup> and because NTIA-ITS has not provided the cost basis for the de minimis government laboratory facilities and modest human resources involved in its role in certification testing. Finally, Key Bridge finds mandatory participation in an NTIA-ITS CRADA and a payment of a "financial contribution" to be inconsistent and irreconcilable with the FCC's prior commitment to seek public comment on certification testing.

To the extent that OET/WTB approve and instruct mandatory participation in the NTIA-ITS CRADA and payment of the associated "financial contribution" to proceed with SAS certification testing, Key Bridge requests clarification whether other monetary expenditures are

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<sup>3</sup> See 47 C.F.R. §§ 0.241(j), 0.331(f).

<sup>4</sup> NTIA-ITS is the research and engineering arm of NTIA. See Institute for Telecommunication Sciences. See <https://www.its.bldrdoc.gov/> (last visited May 20, 2018).

<sup>5</sup> Key Bridge acknowledges that NTIA-ITS will dedicate resources to identify and resolve test code errors.

contemplated before final FCC SAS certification. Key Bridge also requests confirmation that public notice and comment will be sought on the certification test process for second wave SAS applicants to ensure that they are treated similarly to first wave applicants and required to participate in a certification process that involves both rigorous technical scrutiny and identical or nearly identical “financial contributions,” as well as to ensure an open and transparent test process.

## **I. KEY BRIDGE STATEMENT OF INTEREST**

Key Bridge is a leading developer of wireless frequency management technologies and a government-certified operator of shared spectrum registry databases. Key Bridge provides automated spectrum coordination, spectrum monitoring and spectrum trading services in cooperation with United States and international regulatory agencies. Among other initiatives, Key Bridge provides geolocation database service for “TV band” white spaces in the United States and Canada, is among the “first wave” of Federal Communications Commission applicants for Citizens Broadband Radio Service/3.5 GHz Spectrum Access System administration, and has received approval to administer database services in the 70/80/90 GHz millimeter wave band for non-federal U.S. access.<sup>6</sup>

Key Bridge remains committed to the development and implementation of wireless frequency management technologies developed by the FCC over the last decade and continues to make heavy investments in areas where other spectrum-related companies seeking near-term financial rewards have discontinued or dramatically scaled back their participation. Most significantly, Key Bridge continues to heavily invest in TV White Space technology. In 2017,

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<sup>6</sup> Key Bridge Global LLC was designated a TV White Space database administrator in 2011. *See* Order, ET Docket Nos. 02-380 and 04-186, 26 FCC Rcd 554 (2011). Key Bridge Global LLC was also designated as a database manager in the 71-76 GHz, 81-86 GHz and 92-95 GHz bands (70/80/90 GHz bands). *See Order and Notice to Database Managers for the 70/80/90 GHz Link Registration System Under Subpart Q of Part 101*, WT Docket No. 13-291, 31 FCC Rcd 9564 (2016).

Key Bridge became the sole TV White Space database administrator in Canada.<sup>7</sup> In 2018, Key Bridge plans a comprehensive revision and relaunch of its United States TV White Space system, which will provide U.S. end users with access to a variety of new tools and features, while at the same time ensuring that incumbent broadcasters and broadcast auxiliary licensees enjoy more enhanced and accurate information about the TV White Space devices operating around them. If Key Bridge viewed the TV White Spaces as a near-term opportunity in isolation, it would be difficult (perhaps impossible) to justify the financial and human resources invested in such an extensive TV White Spaces research and development effort. Key Bridge, however, remains steadfastly committed to the Commission's long-term vision for radiofrequency management where TV White Spaces form one of the foundational pillars for shared spectrum use, complement other wireless bands with distinct propagation characteristics and use models, and ultimately help bridge the digital divide.

Key Bridge similarly believes that CBRS service in the 3550-3700 MHz band, which offers more available spectrum and flexible technical rules relative to the TV White Spaces, but different propagation characteristics, will serve as a second foundational pillar for the Commission's vision for dynamic spectrum access. A successful CBRS ecosystem, however, requires healthy SAS administrators to ensure that incumbent federal spectrum uses have clean spectrum when needed, and to dynamically manage a potentially large volume of CBRS devices (millions of transmitters if the ecosystem develops to its full potential). A fair and transparent certification process promotes healthy SAS administrators and establishes a level playing field for similarly situated parties, and ultimately serves the interests of all involved parties and the Commission.

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<sup>7</sup> For further information on Key Bridge's Canadian TV White Space operations, please visit <https://ca.keybridgewireless.com/sas/index.xhtml>.

## **II. FCC GUIDANCE ON SAS CERTIFICATION CANNOT BE RECONCILED WITH NTIA-ITS' DEMAND FOR CRADA PARTICIPATION AND "FINANCIAL CONTRIBUTIONS"**

The December 2016 *First Wave Public Notice* conditionally approving Key Bridge and six other first wave SAS administrators established a framework for final SAS approval that included a fundamental requirement to “comply will all instructions issued by WTB and OET,” and “to provide external testing interfaces to enable WTB, OET, NTIA and DoD to utilize that interface and verify that the SAS complies with the relevant rules.”<sup>8</sup> The *First Wave Public Notice* further elaborated that “all conditionally approved SAS Administrators must submit their systems for compliance testing before final approval, which may include public testing period, testing of protections for incumbent systems and field trials,” and that OET/WTB would “provide instructions and criteria for testing through one or more public notices.”<sup>9</sup> “After the testing period is completed, each SAS will be subject to a trial period before receiving its final certification.”<sup>10</sup>

Subsequently, without public notice and comment, or input from first wave SAS applicants, the WTB delegated laboratory testing of SAS systems to NTIA-ITS.<sup>11</sup> While Key Bridge welcomes NTIA-ITS involvement generally, the terms dictated by NTIA-ITS to participate in its proposed testing effort create confusion and raise concerns. Most significantly, NTIA-ITS has made participation in a CRADA a prerequisite for undertaking laboratory certification testing, and this CRADA requires first wave CBRS SAS applicants to make a

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<sup>8</sup> *First Wave Public Notice*, ¶ 7.

<sup>9</sup> *Id.*, ¶ 10.

<sup>10</sup> *Id.*

<sup>11</sup> Key Bridge learned from other first wave SAS administrator applicants in early August 2017 that NTIA-ITS had assumed certain certification test responsibilities. On August 11, 2017, NTIA-ITS provided Key Bridge with a draft CRADA that had been previously shared with CTIA. NTIA-ITS mistakenly assumed that CITA spoke on behalf of all first wave applicants.

\$120,000 “financial contribution” to fund NTIA-ITS involvement.<sup>12</sup> Participation in such a CRADA and the corresponding \$120,000 “financial contribution” conflict with the test framework provided by OET/WTB for first wave SAS certification in December 2016.

First, participation in a sweeping CRADA cannot be reconciled with a discrete certification test effort. A CRADA undertaken pursuant to 15 U.S.C. 3710<sup>13</sup> represents a long-term cooperative research and development effort involving the transfer of technology for the mutual benefit of all participants.<sup>14</sup> However, SAS certification testing is a “black box” test effort measuring inputs and outputs with a simple objective, to confirm that the SAS under test satisfies FCC rules. Neither Key Bridge nor any other first wave SAS administrator applicant should be forced to participate in and fully fund a research and development effort as part of a certification test. If intellectual and financial capital must be contributed to bring NTIA-ITS up to speed on how to test geolocation-based technology, it would be more appropriate for NTIA-ITS to enter a CRADA directly with the Commission and let OET engineers make the investment. Moreover, NTIA-ITS has already informed first wave SAS applicants that it will *not* participate in future CBRs SAS certification testing, and will remove itself from the certification process prior to the second wave of SAS applicants undergoing such testing. Accordingly, even if a long-term cooperative research and development agreement were appropriate in the instant situation -- which it is not -- NTIA-ITS’ immediate withdrawal from involvement in SAS certification testing moots the need for such a relationship.

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<sup>12</sup> NTIA-ITS began to incorporate the \$120,000 contribution in drafts of the SAS CRADA circulated toward the end of calendar year 2017.

<sup>13</sup> See 15 CFR § 3710.

<sup>14</sup> For example, the Defense Information Systems Agency (“DISA”) describes a CRADA as a “key technology transfer mechanism for removing barriers to collaboration, obtaining long-term value, and high returns on R&D investments.” Available at: <https://www.disa.mil/About/CTO/CRADA-Process-Overview> (last visited May 20, 2018).

Second, NTIA-ITS has not provided a meaningful basis for the \$120,000 “financial contribution” required in its CRADA. NTIA-ITS did not develop the test code or test procedures for certification testing,<sup>15</sup> and NTIA-ITS has no relevant experience testing geolocation database-derived technology. Nor will NTIA-ITS contribute meaningful facilities to the CBRS SAS test effort because certification will not involve radiated or conducted radiofrequency emissions (*e.g.*, no anechoic chambers, spectrum analyzers or other costly facilities are involved). Given that NTIA-ITS will contribute neither test code nor meaningful facilities, there appears to be no reasonable correlation between the \$840,000 aggregate “financial contribution” from first wave applicants and actual costs associated with the test effort.

The significant financial “contribution” mandated by NTIA-ITS for certification testing of CBRS SAS systems becomes even harder to reconcile when juxtaposed against NTIA-ITS involvement in the testing of CBRS Environmental Sensing Capability (“ESC”) systems.<sup>16</sup> With respect to ESC testing, NTIA-ITS plays an integral role with demonstrable value. Specifically, among other responsibilities with respect to ESC testing, NTIA-ITS has committed to directly develop test code and procedures, establish pass/fail criterion, to undertake the actual testing at its Boulder facilities, and to the extent necessary, retest new sensors and new radar waveforms in the future. The “financial contribution” associated with NTIA-ITS’ far more intense involvement in ESC testing, however, totals only \$75,000 based on preliminary drafts of an ESC-related CRADA under review.

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<sup>15</sup> Test code will be provided through Wireless Innovation Forum (“WinnForum”) member contributions.

<sup>16</sup> See *Wireless Telecommunications Bureau and Office of Engineering and Technology Conditionally Approve Four Environmental Sensing Capability Operators for the 3.5 GHz Band*, GN Docket No. 15-319, Public Notice (WTB/OET Feb. 2018) (“*ECS Public Notice*”). The ECS Public Notice clearly defines ITS’ role and responsibilities with respect to certifying ESC networks, and ITS has already published detailed technical procedures and held open house meetings to gather industry input. *Id.*, ¶¶ 6-8.

Given that the significant “financial contribution” NTIA-ITS demands cannot be reconciled with the agency’s involvement in the underlying certification test effort, and because NTIA-ITS intends to remove itself from CBRS SAS testing immediately after concluding its work with first wave SAS applicants, it is reasonable to speculate that the “financial contribution” represents at best an educated guess at costs associated with the agency’s involvement in such testing, or at worst a subsidy to help NTIA-ITS develop a more refined and comprehensive test protocol paid for by first wave applicants that it will simply hand off to another third party to run future certification testing.

### **III. KEY BRIDGE SEEKS CLARIFICATION AND INSTRUCTION FROM OET/WTB REGARDING NTIA-ITS DEMANDS**

Pursuant to Section 1.2 of the Commission’s Rules,<sup>17</sup> and the authority jointly delegated to the respective chiefs of OET and WTB to administer the SAS and SAS administrator functions set forth in Part 96 of the Commission’s Rules,<sup>18</sup> Key Bridge seeks a declaratory ruling removing uncertainty regarding certain aspects of CBRS SAS certification testing for which public comment has not been sought.

1. First Wave SAS Administrator NTIA-ITS CRADA Participation. Please declare whether OET/WTB approve and instruct first wave SAS administrators to participate in a cooperative research and development agreement with NTIA-ITS as a prerequisite to undergo CBRS SAS laboratory testing.
2. NTIA-ITS “Financial Contributions.” Please declare whether OET/WTB approve and instruct first wave SAS administrators to make a \$120,000 “financial contribution” to fund NTIA-ITS involvement in first wave SAS administrator laboratory testing.

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<sup>17</sup> See 47 C.F.R. § 1.2.

<sup>18</sup> See 47 C.F.R. §§ 0.241(j), 0.331(f).



3. Additional Monetary Expenditures Related to SAS Certification. Please declare whether any other monetary expenditures related to FCC or other federal agency approvals are contemplated for first wave SAS applicants to conclude certification and begin commercial operations.
4. Parity for Second Wave CBRS SAS Applicants. In May of 2017, the FCC requested proposals from a prospective “second wave” of CBRS SAS administrators.<sup>19</sup> To date, the Commission has not elaborated on the certification process for such second wave CBRS SAS applicants. Please declare whether OET/WTB will seek public comment on the certification process for second wave SAS administrator applicants, and whether second wave applicants will be required to undergo an identical or nearly identical certification process as first wave applicants, including “financial” and other contributions to ensure parity. To the extent that NTIA-ITS will not participate in SAS certification testing after first wave applicants, Key Bridge seeks clarification as to what party will replace NTIA-ITS.

#### **IV. CONCLUSION**

Key Bridge’s CBRS SAS has been developed at great effort and expense, it is ready for certification testing, and Key Bridge hopes to proceed with such testing expeditiously.

The instant petition for declaratory ruling seeks to ensure transparency with respect to NTIA-ITS involvement in CBRS SAS administrator certification testing, and parity concerning first wave and second wave SAS administrator applicants. It does not serve the public interest to create a framework where first wave SAS applicants pay and pave the way for certification only to see second wave applicants expeditiously complete certification without making comparable

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<sup>19</sup> See generally, *Second Wave Public Notice*.

investments in time, effort and direct “financial contributions.” Such an outcome harshly punishes “first movers,” and would chill innovation and investment in future spectrum sharing technologies. A fair, open and transparent process will not only benefit the CBRs ecosystem, but also future spectrum sharing initiatives that the Commission may undertake.

Respectfully submitted,

/s/

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Andrew D. Lipman  
Timothy L. Bransford  
Morgan, Lewis & Bockius LLP  
1111 Pennsylvania Ave, NW  
Washington, DC 20004  
(202) 739-3000  
(202) 739-3001 (Fax)

*Counsel to Key Bridge Wireless LLC*

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