



PUBLIC NOTICE

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WIRELESS TELECOMMUNICATIONS BUREAU AND OFFICE OF ENGINEERING AND TECHNOLOGY APPROVE SPECTRUM ACCESS SYSTEM ADMINISTRATOR RED TECHNOLOGIES FOR FULL SCALE COMMERCIAL DEPLOYMENT IN THE 3.5 GHZ BAND, TO SUPPORT SPECTRUM MANAGER LEASING, AND TO USE KEY BRIDGE WIRELESS LLC'S ENVIRONMENTAL SENSING CAPABILITY

GN Docket No. 15-319

I. INTRODUCTION

1. With this *Public Notice*, the Wireless Telecommunications Bureau (WTB) and the Office of Engineering and Technology (OET) (collectively, WTB/OET) of the Federal Communications Commission (Commission or FCC) certify RED Technologies (RED) as a Spectrum Access System (SAS) Administrator in the 3.55-3.7 GHz band (3.5 GHz band). WTB/OET, in consultation with the Department of Defense (DoD) and the National Telecommunications and Information Administration (NTIA), have reviewed RED's Initial Commercial Deployment (ICD) report, and each has attested that RED has met the requirements in Part 96 of the Commission's rules and is authorized to make its SAS available for commercial use for a five-year term.¹ WTB/OET also approve RED to support spectrum manager leasing for Priority Access Licenses (PALs),² and approve RED to use Key Bridge Wireless LLC's (Key Bridge) Environmental Sensing Capability (ESC) to protect federal incumbent operations in the 3.55-3.65 GHz portion of the 3.5 GHz band.³

II. BACKGROUND

2. In the *2015 Report and Order*, the Commission directed WTB/OET, in consultation with the DoD and NTIA, to oversee the review, certification, and approval of SAS administrators in the 3.5 GHz band.⁴ The *2015 Report and Order* required all prospective SAS administrators to complete a two-stage review process prior to final certification.⁵ In the first stage, a prospective SAS administrator must submit

¹ See 47 CFR 96.63(e).

² See 47 CFR §§ 1.9046, 96.32, and 96.66; *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550- 3650 MHz Band*, GN Docket No. 15-319, Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011, 5014 (2016 WTB/OET) (*Second Report and Order*).

³ See 47 CFR §§ 0.241(j), 0.331(f) (delegating authority to WTB/OET to oversee the SAS approval process and facilitate the testing and development of multiple SAS operators).

⁴ See generally *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959, 4067, paras. 369-373 (2015) (*2015 Report and Order* and *2015 FNPRM*, respectively); see also 47 CFR §§ 0.241(j), 0.331(f).

⁵ See *Wireless Telecommunications Bureau and Office of Engineering and Technology Establish Procedure and Deadline for Filing Spectrum Access System (SAS) Administrators(s) and Environmental Sensing Capability (ESC) Operator(s) Applications*, GN Docket No. 15-319, Public Notice, 30 FCC Rcd 14170, 14174-77 (WTB/OET 2015) (*First Wave Proposal Public Notice*).

a proposal describing how its system will comply with all Commission rules governing the construction, operation, and approval of SASs and will perform all core functions described in the *2015 Report and Order*.⁶ The second stage involves SAS testing both in a controlled lab environment and in a real-world setting.⁷ On May 7, 2021, WTB/OET conditionally approved RED as a SAS administrator, thus concluding the first stage of the review process.⁸

3. As part of the second stage testing process, RED elected to collaborate with the Institute for Telecommunication Sciences (ITS), NTIA's research and development arm, to complete the laboratory testing requirement.⁹ ITS completed its laboratory testing and subsequently provided RED with a SAS laboratory test report, which RED submitted for the Commission's review on September 25, 2022.¹⁰

4. In order to comply with the field-testing requirement, RED filed an ICD proposal with the Commission, which described its proposed short-term, limited geographic commercial deployment.¹¹ On January 12, 2023, WTB/OET found that RED had satisfied the Commission's SAS laboratory testing requirements, and they approved RED to begin ICD as described in their ICD proposals.¹² In accordance with the *RED ICD Approval PN*, RED notified the Commission of commencement of its ICD.¹³ After the

⁶ See *2015 Report and Order*, 30 FCC Rcd at 4054-55, para. 320 (listing SAS core functions); see also *First Wave Proposal Public Notice*, 30 FCC Rcd 14170; *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 2016) (*First Wave SAS Conditional Approval Public Notice*).

⁷ See *2015 Report and Order*, 30 FCC Rcd at 4067, para. 372 (noting that the final compliance testing phase can include a public testing period, testing of protections for incumbent systems, and field trials). On July 27, 2018, WTB/OET released a Public Notice that described the procedure and deadline for filing Initial Commercial Deployment (ICD) proposals. See *Wireless Telecommunications Bureau and Office of Engineering and Technology Establish Procedure and Deadline for Filing Spectrum Access System Initial Commercial Deployment Proposals*, Public Notice, 33 FCC Rcd 7390 (WTB/OET 2018) (*ICD Proposals Public Notice*). The ICD requirement is meant to fulfill the Commission's requirement that applicants conduct a public testing period and field trials prior to final certification. *2015 Report and Order*, 30 FCC Rcd at 4067, para. 372.

⁸ *Wireless Telecommunications Bureau and Office of Engineering and Technology Conditionally Approve Three Spectrum Access System Administrators for the 3.5 GHz Band*, GN Docket Nos. 17-258, 15-319, Public Notice, 36 FCC Rcd 8255 (WTB/OET 2021) (*Second Wave SAS Conditional Approval Public Notice*) (conditionally approving the following three SAS Administrators: Fairspectrum LLC, Nokia, and RED Technologies).

⁹ While lab testing of individual SASs is required before final certification, participation in either the process of verifying and validating the test harness or the subsequent lab testing of an individual SAS with ITS is optional and is not a prerequisite to submitting an ICD proposal or to obtaining final certification. *ICD Proposals Public Notice*, 33 FCC Rcd at 7392, para. 4.

¹⁰ RED requested confidential treatment for its submission. See Performance Certification Results for a 3.5 GHz Spectrum Access System Provided for Testing by RED Technologies SAS; Final SAS Certification Test Report Submission, GN Docket No. 15-319 (filed Sep. 25, 2022) (RED SAS Test Report); see also *ICD Proposals Public Notice*, 33 FCC Rcd at 7390, para. 1. Conditionally approved SAS administrators were permitted to file their laboratory testing reports in GN Docket No. 15-319. *ICD Proposals Public Notice*, 33 FCC Rcd at 7392, para. 5.

¹¹ *ICD Proposals Public Notice*, 33 FCC Rcd at 7390, para. 1. ICD proposals and any supplements were filed in GN Docket No. 15-319 consistent with the Commission's instructions. *ICD Proposals Public Notice*, 33 FCC Rcd at 7394-95, para. 11. See RED Technologies SAS Proposal for Spectrum Access System Initial Commercial Deployment, GN Docket No. 15-319 (filed Nov. 6, 2022) (RED ICD Proposal).

¹² *Wireless Telecommunications Bureau and Office of Engineering and Technology Approve RED Technologies to Begin Initial Commercial Deployment in the 3.5 GHz Band*, GN Docket No. 15-319, Public Notice, 2023 WL 183635 (WTB/OET 2023) (*RED ICD Approval PN*).

¹³ Letter from Pierre-Jean Muller, Chief Executive Officer, RED Technologies SAS, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Mar. 2, 2023) (notifying Commission of ICD commencement date of April 12, 2023).

requisite 30-day ICD period and consistent with the *ICD Proposals Public Notice*, RED filed its ICD report with the Commission in GN Docket 15-319 and requested confidential treatment.¹⁴ WTB/OET, in coordination with NTIA and DoD, reviewed the ICD report in detail.

III. DISCUSSION

A. Full Scale Commercial Deployment

5. Based on our review of the information contained in RED's ICD Report, in addition to all relevant additional information filed by RED in this proceeding,¹⁵ we certify that RED's SAS complies with the Commission's rules, and we approve RED for commercial operation subject to ongoing compliance with the Commission's rules, including the compliance obligations set forth below. Specifically, RED may operate as a SAS administrator on a commercial basis subject to the following compliance obligations, which are consistent with those described in the *SAS Conditional Approval Public Notice*, our rules, and the conditions required of other SAS administrators approved for full scale commercial deployment:¹⁶

- RED must comply with all current and future Commission rules and policies, as well as all instructions issued by WTB, OET, or the Enforcement Bureau (EB), including any processes for interference reporting, consistent with sections 0.241(j) and 0.331(f) of the Commission's rules and procedures¹⁷ applicable to SASs on an ongoing basis.¹⁸ RED must also comply with requests for additional information from the Commission, WTB, OET, or EB.
- As commercial deployments expand, RED must demonstrate continued compliance with all current and future Commission rules and policies, which may include working with commercial and non-commercial users to demonstrate compliance with protection criteria. For example, RED may be required to further demonstrate proper interoperability with its associated ESC to demonstrate effective protection of federal incumbents from actual commercial deployments.
- RED must protect current and future federal incumbent operations in and near the 3.5 GHz band, as set forth in the Commission's rules.¹⁹ RED must be attentive to changes in protection criteria, such as those NTIA identified in January 2020 for Category B base

¹⁴ See RED Technologies SAS Initial Commercial Deployment Report Submission, GN Docket No. 15-319 (filed Jun. 1, 2023) (RED ICD Report).

¹⁵ See, e.g., RED Technologies Spectrum Access System ESC Testing Report, GN Docket No. 15-319 (filed Jul. 3, 2023); RED Technologies SAS Notification of Initial Commercial Deployment, GN Docket No. 15-319 (filed Mar. 2, 2023).

¹⁶ See *First Wave SAS Conditional Approval Public Notice*, 31 FCC Rcd at 13356-58, para. 7; *Wireless Telecommunications Bureau and Office of Engineering and Technology Approve Four Spectrum Access Administrators for Full Scale Commercial Deployment in the 3.5 GHz Band and Emphasize Licensee Compliance Obligations in the 3650-3700 MHz Band Under Part 96*, GN Docket No. 15-319, Public Notice, 35 FCC Rcd 117, 118-20, para. 5 (WTB/OET 2020); *Wireless Telecommunications Bureau and Office of Engineering and Technology Approve Spectrum Amdocs for Full Scale Commercial Deployment in the 3.5 GHz Band*, GN Docket No. 15-319, Public Notice, 35 FCC Rcd 3687, 3689, para. 5 (WTB/OET 2020); *Wireless Telecommunications Bureau and Office of Engineering and Technology Approve Key Bridge Wireless for Full Scale Commercial Deployment in the 3.5 GHz Band*, GN Docket No. 15-319, Public Notice, 36 FCC Rcd 4880 (WTB/OET 2021).

¹⁷ See 47 CFR §§ 0.241(j), 0.1331(f) (delegating authority to WTB/OET to oversee the SAS approval process and facilitate the testing and development of multiple SAS operators).

¹⁸ See, e.g., 47 CFR §§ 96.53-96.65.

¹⁹ See 47 CFR § 96.15.

stations, and to modifications to the list of sites identified by NTIA.²⁰ RED must be able to receive and address reports of interference from federal Incumbent Access tier users. In addition, RED must work with the Commission, NTIA, and DoD to address interference issues expeditiously and to implement any new reporting processes as they are developed.²¹

- RED is certified to operate in the contiguous United States, Alaska, Hawaii, Puerto Rico, and Guam. If RED intends to operate in additional U.S. Territories and Possessions, it must submit a filing in GN Docket No. 15-319 detailing the additional territories that it plans to cover. These supplemental filings must include all information necessary for WTB/OET to make a determination regarding RED's ability to provide service to each territory, including terrain maps and associated ESC sensor coverage information (where applicable).
- If RED plans to make substantive changes to its system, for example, to comply with new releases of industry standards, RED must supplement or amend its filings in GN Docket No. 15-319 to reflect these changes. Before WTB/OET approves the use of new or modified SAS features, RED must demonstrate that the modified SAS will continue to comply with the Commission's rules, and it may be required to submit its systems for additional testing. Upon request, RED must provide external testing interfaces to enable WTB/OET, in collaboration with NTIA and DoD, to verify that the proposed modifications comply with the relevant rules as specified by the Commission.

6. The above conditions will ensure that RED will continue to comply with the Commission's rules. RED's certification may be revoked at any time if RED fails to comply with the Commission's rules and guidance on an ongoing basis.

B. Spectrum Manager Leasing

7. RED has also chosen to support PAL leasing and has submitted additional information in GN Docket No. 15-319 to demonstrate the functionality of its leasing system so that it may offer PAL leasing services.²² The Commission has established minimum standards that SAS administrators must meet if they choose to accept and support spectrum manager leasing arrangements.²³ These minimum requirements establish that for a SAS administrator to support leasing arrangements, it must: (a) accept and store the information required in a licensee's notification; (b) verify whether the lessee has made the required certification with the Commission; (c) verify that the lease will not result in the lessee holding more than the 40 megahertz of Priority Access spectrum in a given License Area, and that lessee operation will not extend beyond the licensee's Service Area or within its PAL Protection Area; (d) inform the licensee as to whether the notification has been received and verified; and (e) provide the

²⁰ See Letter from Charles Cooper, Assoc. Admin., Office of Spectrum Mgt., NTIA, to Ronald T. Repasi, Chief (Acting) OET, and Donald Stockdale, Jr., Chief, WTB, FCC (Jan. 22, 2020), available at <https://www.ntia.doc.gov/fcc-filing/2015/ntia-letter-fcc-commercial-operations-3550-3650-mhz-band>; <https://www.fcc.gov/ecfs/filing/101220466714222>. See also September 21, 2023 NTIA Letter; See also Letter from Charles Cooper, Associate Administrator, Office of Spectrum Management, NTIA to Ronald T. Repasi, Acting Chief, OET, FCC and Joel Taubenblatt, Acting Chief, WTB, FCC (August 14, 2023) (August 2023 NTIA Letter), available at: <https://www.fcc.gov/ecfs/document/10814108365840/1>; *Promoting Investment in the 3550-3700 MHz Band*, GN Docket Nos. 17-258 and 15-319, Order, DA 23-734 (WTB/OET 2023); and *Wireless Telecommunications Bureau and Office of Engineering and Technology Announce Deployment of a New Federal Portal System and Revision to the List of Protected Facilities in the 3.5 GHz Band*, GN Docket Nos. 17-258 and 15-319, Public Notice, DA 23-733 (WTB/OET 2023).

²¹ See, e.g., 47 CFR §§ 96.53, 96.55.

²² See 47 CFR § 96.66; see also RED ICD Report at 139-147.

²³ See 47 CFR §§ 1.9046, 96.32, and 96.66. Other types of leases, including *de facto* transfer leases, are governed by the standard processes described in part 1 of the Commission's rules. See 47 CFR §§ 1.9001, *et seq* and 96.32.

Commission with electronic reports of the leasing notifications it received on a daily basis.²⁴

8. RED has provided all required information regarding its ability to interact with Commission systems to acquire and submit all required lease information.²⁵ RED has also agreed to support PAL spectrum manager lease agreements in compliance with sections 96.32 and 96.66 of the Commission's rules, certified that it will satisfy the requirements outlined in the *Second Report and Order*, and demonstrated the ability to successfully interact with the requisite Commission systems.²⁶ Accordingly, RED is approved to support spectrum manager leasing of Priority Access Licenses subject to the conditions set forth below and ongoing compliance with the Commission's rules and instructions.²⁷

9. This approval is conditioned on ongoing compliance with technical limitations governing use of the ULS API.²⁸ Specifically, leasing information may only be entered into the API Monday through Friday between the hours of 9:00 am and 5:00 pm eastern.²⁹ Although SAS administrators may enter information into the API only during the identified hours and days, this does not affect their ability to accept leases at other times. We also remind SAS administrators that they are permitted to execute leases only between Priority Access Licensees and qualified lessees.³⁰

C. Environmental Sensing Capability

10. As set forth in the conditions to full commercial deployment above, a SAS administrator may be required to demonstrate its ability to operate with an associated ESC prior to using that ESC to authorize commercial deployments in the band.³¹ RED does not operate its own approved ESC.³² On July 3, 2023, RED filed its ESC Interoperability Testing Report showing successful interoperation between RED's SAS and Key Bridge's ESC.³³ After reviewing this submission, we find that RED has demonstrated that its SAS can properly interoperate with Key Bridge's ESC and that it will comply with all relevant provisions of the Commission's Part 96 rules. As such, we approve RED's request, subject to ongoing compliance with the Commission's rules and policies, to use Key Bridge as its associated ESC

²⁴ The Commission implemented a "light-touch" leasing notification framework to replace the immediate processing procedures of spectrum manager leases under section 1.9020(e)(2) of our existing rules. Priority Access Licensees and lessees may also enter into spectrum manager leases using the general 21-day notification procedure in section 1.9020(e)(1) of our current rules. *See* 47 C.F.R. §§ 1.9020 and 1.9046; *Second Report and Order*, 31 FCC Rcd at 5071, para. 213 & n.485. Regardless of whether the Priority Access Licensee and lessee enter into a spectrum manager lease via the light-touch notification process or the 21-day notification process, the Priority Access Licensee must notify a SAS administrator before the lessee is permitted to operate. *See* 47 C.F.R. § 1.9046(c); *Second Report and Order*, 31 FCC Rcd at 5074, para. 220. SAS administrators are required to comply with all applicable Commission rules regardless of the notification made.

²⁵ *See* 47 CFR § 96.66(a)(2). The Commission developed a dedicated application programming interface (API) within the Universal Licensing System (ULS) to support notifications from the SASs regarding spectrum manager lease notifications submitted under the immediate processing rules. *See* 47 C.F.R. §§ 1.9020(e) and 1.9046.

²⁶ *See* RED Technologies SAS Supplemental Filing Regarding Priority Access Leasing Functionality of its Citizens Broadband Radio Service Spectrum Access System, GN Docket No. 15-319 (filed Sep. 5, 2023).

²⁷ *See SAS Certification Public Notice*, 35 FCC Rcd at 118-120, para. 5.

²⁸ *See* note 25.

²⁹ Each SAS administrator is permitted to submit a maximum of five leases per minute during this window.

³⁰ *See* 47 CFR § 1.9046(b). A list of Priority Access Licensees and other qualified lessees can be found at: <https://www.fcc.gov/35-ghz-band-overview> ("Secondary Markets for Priority Access Licenses" tab).

³¹ *See* para. 5, *supra*.

³² *See* RED ICD Report at 77.

³³ *See* RED Technologies Spectrum Access System ESC Testing Report, GN Docket No. 15-319 (filed Jul. 3, 2023).

provider to protect federal incumbent operations consistent with the Commission's rules and its SAS authorization.

By the Chief, Wireless Telecommunications Bureau, and the Chief, Office of Engineering and Technology.

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