



PUBLIC NOTICE

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WIRELESS TELECOMMUNICATIONS BUREAU AND OFFICE OF ENGINEERING AND TECHNOLOGY APPROVE FIVE SPECTRUM ACCESS SYSTEM ADMINISTRATORS TO BEGIN INITIAL COMMERCIAL DEPLOYMENTS IN THE 3.5 GHZ BAND

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 that the Spectrum Access Systems (SASs) operated by Amdocs, Inc. (Amdocs), CommScope, Federated Wireless, Inc. (Federated), Google, and Sony, Inc. (Sony) (collectively, SAS Administrators) have satisfied the Commission's SAS laboratory testing requirements¹ and are approved to begin their initial commercial deployments (Initial Commercial Deployment or ICD) as described in their ICD proposals.² WTB/OET, in consultation with the

¹ Conditionally approved SAS Administrators were permitted to file their laboratory testing reports in GN Docket No. 15-319. *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, 7392, para. 5 (WTB/OET 2018) (*ICD Proposals Public Notice*). Each SAS Administrator chose to file their laboratory testing report with the Commission and each requested confidential treatment. See Letter from Robert A. Silverman, Counsel for Amdocs, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed July 24, 2019); Letter from H. Mark Gibson, Director, Regulatory Policy, CommScope, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed July 22, 2019); Letter from Jennifer M. McCarthy, Vice President, Legal Advocacy, Federated Wireless, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed July 19, 2019); Letter from Megan Anne Stull, Counsel, Google LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed July 19, 2019); Letter from James Morgan, Director and Counsel, Sony Electronics, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed July 24, 2019).

² 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. Each SAS Administrator requested confidential treatment for their ICD filings. See Letter from Letter from Caressa D. Bennet, Counsel for Amdocs, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Sep. 10, 2018) (ICD proposal); Letter from Letter from Robert Silverman, Counsel for Amdocs, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed September 12, 2019) (Supplement); Letter from H. Mark Gibson, Director, Regulatory Policy, CommScope, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Sept. 10, 2018) (ICD proposal); Letter from H. Mark Gibson, Director, Regulatory Policy, CommScope, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Aug. 28, 2019) (Supplement); Letter from Kurt Schaubach, Chief Technology Officer, Federated Wireless, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Sept. 10, 2018) (ICD proposal); Letter from Jennifer M. McCarthy, Vice President, Legal Advocacy, Federated Wireless, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Mar. 29, 2019) (Supplement); Google LLC Proposal, GN

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Department of Defense (DoD) and the National Telecommunications and Information Administration (NTIA), have reviewed both the SAS laboratory testing reports and the ICD proposals submitted by the SAS Administrators.

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 SASs in the 3.5 GHz band.³ As required in the *2015 Report and Order*, and as further described in the *First Wave Proposal Public Notice*, all prospective SAS Administrators must complete a two-stage review process prior to final certification.⁴ In the first stage, a prospective SAS Administrator must submit a proposal describing how its system will comply with all Commission rules governing the construction, operation, and approval of SASs and perform all core functions described in the *2015 Report and Order*.⁵ The second stage involves SAS testing both in a controlled lab environment and in a real-world setting.⁶ On December 21, 2016, WTB/OET conditionally approved the first wave of SAS Administrators.⁷

3. As part of the second stage testing process, Amdocs, CommScope, Federated, Google, and Sony elected to collaborate with the Institute for Telecommunication Sciences (ITS), NTIA's research and development arm, in order to complete the laboratory testing requirement.⁸ On November 19, 2018, ITS began testing the SASs submitted by Amdocs, CommScope, Federated, Google, and Sony. ITS completed its laboratory testing on May 3, 2019, and subsequently provided the respective SAS Administrators with SAS laboratory test reports, which Amdocs, CommScope, Federated, Google, and Sony submitted for the Commission's review in July 2019.⁹

4. In order to comply with the field testing requirement, in July 2018, WTB/OET sought proposals for short-term, limited geographic commercial deployment.¹⁰ Consistent with the *ICD Proposals Public Notice*, Amdocs, CommScope, Federated, Google, and Sony timely filed ICD proposals with the Commission.¹¹ Amdocs, CommScope, Federated, Google and Sony later supplemented their

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Docket No. 15-319 (filed Sept. 10, 2018) (ICD proposal); Letter from Megan Anne Stull, Counsel, Google LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed June 4, 2019) (First Supplement); Letter from Megan Anne Stull, Counsel, Google LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed July 24, 2019) (Second Supplement); Letter from Megan Anne Stull, Counsel, Google LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Aug. 23, 2019) (Third Supplement); Letter from Megan Anne Stull, Counsel, Google LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Sept. 10, 2019) (Fourth Supplement); Sony Corporation Proposal, GN Docket No. 15-319 (Filed Sept. 10, 2018); Sony Corporation Amendment, GN Docket No. 15-319 (filed Apr. 12, 2019); Sony Corporation Second Amendment, GN Docket No. 15-319 (filed June 13, 2019).

³ 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).

⁴ 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*).

⁵ 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*, Public Notice, 31 FCC Rcd 13355 (WTB/OET 2016) (*SAS Conditional Approval Public Notice*).

⁶ 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 ICD proposals. See *ICD Proposals Public Notice*, 33 FCC Rcd 7390. ICD is meant to fulfill the Commission's requirement that applicants

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proposals.¹²

III. DISCUSSION

5. WTB/OET, in coordination with NTIA and DoD, are responsible for assessing and testing each conditionally approved SAS prior to final certification in both laboratory and real-world environments.¹³ ICD will satisfy the real-world element of the testing process and will allow WTB/OET to assess whether each SAS can operate under actual deployment conditions.¹⁴

6. WTB/OET, in coordination with NTIA and DoD, reviewed the laboratory test reports and ICD proposals in detail. Based on the information contained therein, we find that each laboratory test report satisfies the Commission's requirement to assess and test each SAS in a controlled lab environment and that each ICD proposal meets the requirements set forth in the *ICD Proposals Public Notice*. WTB/OET therefore approve the SASs of Amdocs, CommScope, Federated, Google, and Sony for Initial Commercial Deployment subject to the ongoing compliance obligations as follows:

- Each SAS Administrator must file a notification in GN Docket No. 15-319 stating: (1) the beginning date of their ICD period; (2) the specific geographic areas covered by ICD deployments; (3) whether the SAS is DPA-enabled;¹⁵ (4) whether the SAS will be operating with an approved Environmental Sensing Capability (ESC)¹⁶ operator during ICD and, if so, which ESC they will be using;¹⁷ and (5) the expected end date of the ICD reporting period. The notification must also include a primary point of contact for incumbent operators to use to report potential interference issues to the SAS¹⁸ and to obtain additional information about ICD operations, if needed. The ICD period may begin once this notification is filed.
- Initial Commercial Deployments must continue for a minimum of 30 consecutive days, consistent with the SAS Administrator's ICD proposal, and they must demonstrate

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conduct a public testing period and field trials prior to final certification. *2015 Report and Order*, 30 FCC Rcd at 4067, para. 372.

⁷ *SAS Conditional Approval Public Notice*, 31 FCC Rcd 13355 (conditionally approving the following seven SAS Administrators: Amdocs, Inc.; CommScope; CTIA; Federated; Google; iPosi; Key Bridge; and Sony). CTIA later withdrew its proposal. See Letter from Paul Anuszkiewicz et al., Vice President, Spectrum Planning, CTIA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-319 (filed Nov. 20, 2017).

⁸ 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.

⁹ See *supra* note 1.

¹⁰ *ICD Proposals Public Notice*, 33 FCC Rcd at 7390, para. 1.

¹¹ See *supra* note 2.

¹² See *id.*

¹³ See *2015 Report and Order*, 30 FCC Rcd at 4067, para. 372.

¹⁴ *ICD Proposals Public Notice*, 33 FCC Rcd at 7392, para. 6.

¹⁵ Dynamic Protection Areas (DPAs) are pre-defined protection areas that extend beyond the coastline or that enclose a protected terrestrial radar facility, which may be activated or deactivated as necessary to protect DoD radar systems. *Promoting Investment in the 3550-3700 MHz Band*, GN Docket No. 17-258, Order, 33 FCC Rcd 4987, 4990, para. 5 (WTB/OET 2018) (*DPA Waiver Order*). In the *DPA Waiver Order*, WTB and OET conditionally waived sections 96.7(a), 96.15(a)(2)-(3), 96.15(b)(2)-(3), 96.45(b), 96.53(g), and 96.57(d) of the Commission's rules to allow: (1) DPA-enabled SASs to authorize both Category A and Category B CBSDs in the 3.5 GHz band prior to

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compliance with the Commission's rules and other requirements set forth in the *ICD Proposals Public Notice*.¹⁹ ICDs must involve a variety of testing scenarios featuring multiple Citizen Broadband Radio Service Devices (CBSDs)²⁰ that result in the generation of data upon which the Commission can reasonably predict that the SAS can reliably operate in compliance with the Commission's rules.²¹

- During ICD, the SAS Administrator must operate a SAS that is functionally consistent with the SAS tested in the laboratory environment. SAS operators may implement software upgrades and patches to address any issues identified during ICD.
- Each SAS Administrators must comply with all current and future Commission rules, instructions, and procedures.
- Each SAS Administrator must comply with all instructions issued by WTB and OET pursuant to sections 0.241(j) and 0.331(f) of the Commission's rules.²²
- Each SAS Administrator must promptly respond to any Commission, WTB, Enforcement Bureau, or OET requests for additional information.
- During ICD, each conditionally approved SAS must promptly deactivate, or make changes in the operational parameters of any CBSD or group of CBSDs, if directed to do so by the Commission, WTB, OET or Enforcement Bureau. If, during ICD, a SAS is continually shown to cause interference to incumbents, WTB/OET may require that SAS to cease all operations until the underlying issues are resolved.

7. In addition, consistent with the *ICD Proposals Public Notice* and the individual ICD proposals submitted by the SAS Administrators, each SAS Administrator must comply with the following:

- The SAS Administrator must demonstrate that users can register with the SAS, receive authentication, and obtain user IDs during ICD.²³
- The SAS Administrator must demonstrate how the SAS will communicate with and manage multiple CBSD or Domain Proxy (DP) products, including the protocols for

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ESC deployment and certification; and (2) DPA-enabled SASs to be certified without being tested for compliance with phase one Exclusion Zone requirements in areas where NTIA has published DPAs.

¹⁶ ESCs will consist of a network of sensors—infrastructure-based, device-based, or a combination of both—that will detect federal radars operating in and around the 3.5 GHz band and relay information regarding those transmissions to the SAS in order to protect incumbent federal operations. See 47 CFR §§ 96.3, 96.15, 96.67.

¹⁷ See *Wireless Telecommunications Bureau and Office of Engineering and Technology Announce the Approval and Registration of Environmental Sensing Capability Sensors of Three ESC Operators for the 3.5 GHz Band*, GN Docket No, 15-319, Public Notice, DA 19-718 (WTB/OET July 29, 2019); *DPA Waiver Order*, 33 FCC Rcd at 4993-94, para.16.

¹⁸ See 47 CFR § 96.17(f).

¹⁹ See *ICD Proposals Public Notice*, 33 FCC Rcd at 7392-94, paras. 7-8, 10.

²⁰ CBSDs are fixed stations, or networks of such stations, that operate on a Priority Access or General Authorized Access basis in the Citizens Broadband Radio Service. 47 CFR § 96.3.

²¹ *ICD Proposals Public Notice*, 33 FCC Rcd at 7394, para. 10. These scenarios are included in the ICD proposals submitted by each SAS Administrator. See *supra* note 2.

²² See 47 CFR §§ 0.241(j), 0.331(f).

²³ See, e.g., 47 CFR §§ 96.25(c), 96.33, 96.39, 96.57.

SAS-CBSD communications for registration, channel grant, and channel release.²⁴ The SAS Administrator must identify all its commercial partners that will operate during ICD.

- The SAS Administrator must demonstrate that a certified professional installer (CPI) can register CBSDs/DPs during ICD and must explain how that professional installation will ensure the SAS can accurately locate devices in compliance with Part 96.²⁵
- The SAS Administrator must demonstrate that the SAS can access, read, and use data directly from FCC databases during ICD.²⁶
- The SAS Administrator must demonstrate its ability to correctly synchronize and exchange information with other SASs and to correctly apply information security procedures and incumbent protection methods during ICD.²⁷
- The SAS Administrator must demonstrate the processes that it will use to ensure the correct implementation of all relevant interference protection criteria, including how the SAS's over-the-air propagation testing addresses the protection of Fixed Satellite Service earth station sites, federal inland radar test sites, and area-based protections (e.g., Grandfathered Wireless Protection Zones).²⁸ The SAS Administrator should include the results of these protection tests in its ICD Report consistent with its approved final ICD deployment plan.
- If a SAS is DPA-enabled, the SAS Administrator must demonstrate the ability to implement notification-based DPA protection using a DPA portal.²⁹
- Each SAS Administrator must provide a method by which WTB, Enforcement Bureau, OET, NTIA, and DoD will have access to the SAS and data generated by the SAS during ICD in order to verify that the SAS complies with the relevant rules. Each SAS Administrator must also provide a primary point of contact to address questions about SAS operations or information from the Commission, NTIA, and DoD.
- Each SAS Administrator must demonstrate real-world application of interference reporting and timely interference mitigation processes, including providing FCC enforcement personnel with access to SAS data upon request.³⁰
- Once a SAS Administrator completes its ICD, it must submit an ICD Report to the Commission, according to its approved proposal format and including a demonstration of compliance with each of the conditions above.³¹

²⁴ See, e.g., 47 CFR §§ 96.39, 96.55-59. ICD will not need to cover all test cases performed in ITS lab testing.

²⁵ See *3.5 GHz First Report & Order*, 30 FCC Rcd at 4028, para. 220 (stressing the importance of accurate CBSD geo-location for coordinating interactions between and among users in the band and for protecting Incumbent Users from harmful interference in compliance with Part 96). WinnForum has developed standards and a program to approve CPIs that successfully complete their training in the relevant Part 96 rules and the associated technical best practices, per the Commission's strong encouragement to multi-stakeholder groups and industry associations in the *3.5 GHz First Report & Order*. See *id.* at 4028-29, paras. 221-222.

²⁶ See 47 CFR § 96.55(d), 96.63.

²⁷ See 47 CFR §§ 96.55(a)(2), 96.57, 96.59, 96.63(i).

²⁸ See 47 CFR §§ 96.15, 96.17, 96.21, 96.57, 96.59; <https://www.ntia.doc.gov/fcc-filing/2015/ntia-letter-fcc-commercial-operations-3550-3650-mhz-band>.

²⁹ *ICD Proposals Public Notice*, 33 FCC Rcd at 7393, para. 7.

³⁰ See, e.g., 47 CFR §§ 96.53, 96.55.

³¹ *ICD Proposals Public Notice*, 33 FCC Rcd at 7394, para. 10.

8. The above conditions will ensure that each approved SAS will comply with the Commission's rules. A SAS Administrator will not receive final certification unless the above conditions are met and such certification may be revoked at any time if the SAS Administrator fails to comply with the Commission's rules and guidance on an ongoing basis.

IV. NEXT STEPS

9. We will oversee carefully the operations of the SASs during the ICD period. WTB/OET, in coordination with NTIA and DoD, will review all ICD Reports and will publicly announce all SAS Administrators that successfully complete ICD and receive final certification to operate a SAS.

10. After a SAS Administrator submits its ICD Report to the Commission, it may continue Initial Commercial Operations, subject to the above conditions, during the review period and pending further Commission review. SAS Administrators may expand operations seven business days after providing notice to the Commission, provided that such notice includes all information required by the *ICD Proposals Public Notice*. All ICD deployments must comply with all conditions listed above and contained in the *ICD Proposals Public Notice*.³²

11. SAS Administrators that successfully complete ICD and receive final certification to operate will be allowed to make their SASs available for commercial use for the five-year term specified in our rules.³³ We will publicly announce the availability of each SAS, at which time the five-year term will commence.

V. PROCEDURAL REQUIREMENTS

12. SAS Administrators must file: (1) ICD Reports and any supplements; and (2) ICD notifications with the Commission using the Commission's Electronic Comment Filing System.³⁴ See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998). SAS Administrators may request confidential treatment of information contained in their filings consistent with Section 0.459 of the Commission's rules.³⁵ All such filings should refer to **GN Docket 15-319**. Questions pertaining to ICD may be sent to ICD.Info@fcc.gov. Any information submitted to ICD.Info@fcc.gov will be considered public unless the filer requests confidential treatment of such information consistent with Section 0.459 of the Commission's rules.³⁶

13. Questions regarding this *Public Notice* may be directed to Paul Powell, Assistant Division Chief, Wireless Telecommunications Bureau, Mobility Division at (202) 418-1613 or paul.powell@fcc.gov, or Navid Golshahi, Electronics Engineer, Office of Engineering and Technology, Policy and Rules Division at (202) 418-2422 or navid.golshahi@fcc.gov.

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

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³² *ICD Proposals Public Notice*, 33 FCC Rcd at 7392-94, paras. 7-10.

³³ See 47 CFR § 96.63(e).

³⁴ While we will accept proposals electronically, we are not requesting public comment on the reports or notifications at this time.

³⁵ See 47 CFR § 0.459.

³⁶ See 47 CFR § 0.459.