2019 USS Onboarding

Low Altitude Authorization and Notification Capability (LAANC)

February 2019

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FAA UAS LOW ALTITUDE AUTHORIZATION AND NOTIFICATION CAPABILITY (LAANC) ONBOARDING

1. Background

The FAA continues to develop its business plan to integrate Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS). As part of that approach, the FAA is dedicated to ensuring that UAS operate safely in the NAS with manned aircraft.

The FAA's challenge is to foster equitable access for all users and providers while ensuring critical air traffic technical and safety requirements are met for operations in the NAS. In addition, the FAA seeks to foster a competitive environment for providers of UAS and related services. The FAA must balance these interests with the requirements of 14 C.F.R. Part 107 and FAA Reauthorization Act of 2018.

Part 107 is already implemented in LAANC and requires Part 107 operators to obtain authorization to fly in certain classes of airspace. 44 U.S.C. § 44809 of the FAA Reauthorization Act of 2018 repealed the earlier enacted Section 336 of the FAA Modernization and Reform Act of 2012. Under the 2012 law, model aircraft operators were required to provide notice of intent to fly when operating within five miles of an airport. The 2018 law eliminates notifications and no longer refers to model aircraft. Moving forward, limited recreational operators will be required to obtain authorizations (akin to what Part 107 operators must do). The FAA is currently working on integrating these recreational operators into LAANC.

As of November 16, 2018, the public has registered approximately 1,250,000 small unmanned aircraft with the FAA. Over 60,000 airspace authorizations have been processed through manual processing and 2,000 requests currently await approval. The manual process is labor intensive and authorization requests typically take 90 days to process. Due to the explosive growth of the sUAS industry, an automated process is critical to support the increased demand and to continue to provide safe and efficient NAS operations.

LAANC provides Part 107 and will provide Recreational sUAS operators an automated and efficient solution to receive airspace authorization from FAA Air Traffic through near-real-time processing of airspace authorizations. LAANC leverages private industry actors, called UAS Service Suppliers (USSs) using a data exchange framework that

allows sUAS operators to submit authorization requests to the FAA. LAANC is expected to increase rule compliance.

Through LAANC, USSs are able to access UAS facility maps (UASFMs). The UASFMs provide maximum altitudes in controlled airspace that sUAS are allowed to fly. Operations submitted by sUAS operators are checked against the UASFMs and if below the maximum altitude (and all other legal provisions, such as daylight operation and within visual line of sight of operator, are followed), then LAANC will automatically approve the operation near instantaneously. Additionally, LAANC can allow operators to request to fly above the UASFM's prescribed altitude in a certain airspace if the operation will remain under 400 feet and all other legal provisions are followed. These operations are known as requests for further coordination. The availability of further coordination depends on the individual USS.

2. Objectives

LAANC depends upon full cooperation of the FAA, Air Traffic, and USSs. Therefore, the onboarding process for potential USSs is detailed and requires prospective applicants to adhere to all requirements. This document is meant as a guide to potential USSs and the objectives include:

1. Provide required onboarding information and documentation to potential USSs.
2. Outline the LAANC USS onboarding process and define requirements.
3. Provide a mechanism for potential USSs to communicate their approach for satisfying the USS operating rules.

3. New USS Onboarding Application Process

For 2019, the FAA plans to host a single USS application period consisting of four steps across approximately ten months (See Figure 1 below) beginning January 7, 2019 through October 21, 2019.

> *Note: Visit www.faa.gov/go/laanc for current application dates and latest announcements.*

> *Note: The number of application periods will fluctuate each year according to industry demand for new USS with no guarantee of yearly occurrence.*

At any point during the Onboarding Process, the FAA or USS applicant may decide a LAANC solution is unlikely to satisfy all requirements. If so, the initiating party will notify the other of its decision to not move forward with the Onboarding Process. If this occurs, the FAA encourages applicants to continue developing their solution and to reapply during the next application period.
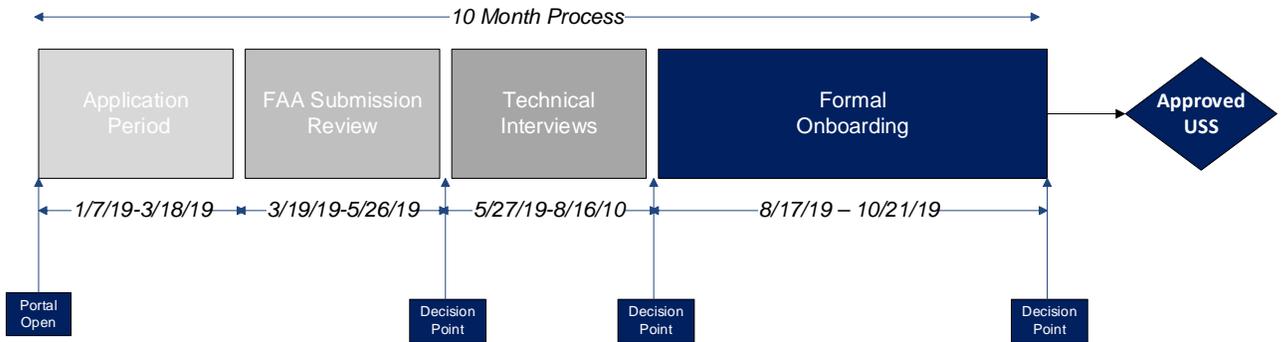
Figure 1. Onboarding Process Timeline

3.1. Application Period

Respondents must read the following documents prior to application[1]:

- o LAANC Concept of Operations
- o USS Performance Rules
- o Memorandum of Agreement (MOA)
- o USS Onboarding Demonstration and Test Plan

A complete USS onboarding application submission must include:

- o Completed USS Response Package, in accordance with Section 6.5 of this document
- o A signed MOA by the potential USS
- o Any additional information about the product or service (constraints provided in Section 6, Specific Instructions)

3.2. FAA Submission Review

The FAA will review all complete applications submitted by the published application deadline. During the review period, the FAA may ask for additional information and applicants are expected to provide any requested information. The FAA will not review any applications that are incomplete or submitted past the application deadline. Failure to adhere to all Specific Instructions (see Section 6), may result in the USS not receiving an invitation for a technical interview.

The FAA will inform all potential USSs, via email, if they are invited for a technical interview prior to the start of the Technical Interview period.

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[1] Available at: https://www.faa.gov/uas/programs_partnerships/uas_data_exchange/industry/

3.3. Technical Interview

If the FAA decides to proceed with the application, the respondent will receive via email an invitation to participate in a technical interview. The email will provide detailed instructions on how to schedule the Technical Interview. Please note that the potential USS must select an open interview session within one week of receiving the email. If an USS fails to schedule an interview by the end of the first week, they will be removed from the onboarding process.

The FAA expects that that potential USS will demonstrate a completely working product or mature prototype during the technical interview. Additional details and requirements for the Technical Interview are listed in Section 6.6, Technical Interview Specifics.

Finally, all USS applicants will be notified via email no later than the next business day following the completion of the technical interview period whether or not they have been invited to formal onboarding. The USS applicant should not expect a determination from the FAA any sooner than this date.

3.4. Formal Onboarding

Applicants receiving invitations to participate in this stage of the onboarding process may proceed to system integration with the LAANC Automation Platform (LAANC AP) in a staging environment.

In order to gain access into the staging environment, the applicant must provide the FAA with the IP address or CIDR block of the system(s) that will originate connections to the FAA. (Acceptable blocks are /8, /16, /24, and /32 IPv4 address ranges and /16, /24, /32, /56, /64, and /128 IPv6 address ranges.) Once provided, the FAA will provide the applicant with a unique three-letter identifier, API documentation, and authentication details. The applicant must be prepared to implement security measures for all connections to LAANC-AP by employing Secure Sockets Layer (SSL) and OAuth 2.0. **The Interface Control Documentation (ICD) and related information will be available to the potential USS only after it has progressed to this step.**

Initial connectivity to the LAANC-AP staging environment may be verified using an API test client. The use of an established tool will allow the applicant and FAA to validate network connectivity and test that the authentication token is working correctly independent of the applicant-developed software. The FAA will provide sample scripts that will assist in setting up the initial tests and demonstrate proper invocation of the LAANC-AP API. The USS applicant must deploy webhooks to receive messages initiated by the LAANC-AP and a callback URL must be provided to the FAA. The requirements for the webhook receiver are contained in the API documentation. Once initial network

connectivity and authentication is complete, the applicant may proceed to integrate fully with the staging environment.

Formal onboarding demonstration sessions will be conducted in accordance with the *USS Onboarding Demonstration and Test Plan* and the *USS Onboarding Rules*[2], dated for the applicable onboarding period. (See Section 6 for more information) The applicant must demonstrate successful execution of validation scenarios to show compliance with the USS Operating Rules. The FAA will allow all applicants two attempts to pass the compliance demonstrations/tests. If an applicant fails both attempts or either party determines a low likelihood of success after the first attempt, the applicant may resubmit a package during the next application period or future without penalty.

After the applicant successfully completes all onboarding activities, the FAA will sign the MOA and the applicant will receive notification that it may begin providing services on a specific date. Specific directions regarding locations, dates, public communication and press releases, and other services provided will be communicated by the FAA to the USS at the time of approval. Configuration of the production environment will occur to allow the application to connect including the whitelisting of applicant server(s), webhook URL (if applicable), and production authentication credentials.

USS applicants invited to formal onboarding process are expected to have a production-ready product. If the USS applicant is successful with onboarding, the FAA expects the USS to promptly begin offering LAANC services within its planned business model. Any deployment delay beyond the reasonable time required for minor fixes, if required, and coordinated public announcements by the government may result in the FAA asking the USS applicant to reapply during the next open application period. The FAA expects the USS to promptly deploy a product and any failure to do so will result in suspension of the USS's participation in the LAANC program.

The FAA reserves the right to decide, at any point in the process, that the applicant is not yet capable of onboarding. If the FAA makes this determination, no penalties will be assessed and the applicant may re-engage in the process during any future open application period.

The FAA's decision on the ability of an applicant to onboard is final. Reasons the FAA may decide an applicant is not capable of onboarding include but are not limited to:
- o An applicant does not have a working product as demonstrated and described in the initial package

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[2]Available at: https://www.faa.gov/uas/programs_partnerships/uas_data_exchange/industry/

      o An applicant does not have a mature product that meets the USS Operating Rules

      o An applicant does not pass the security interface tests that provide protections for the FAA, the USS, and sUAS Operators.

4. Previous Application USS Process

Applicants who previously submitted a package and conducted a Technical Interview or Formal Onboarding session but were not successful must submit a package during the open application period. The USS applicant can either submit a new application package or the one previously submitted with applicable changes. In either case, it is recommended the USS applicant highlight, as much as possible, the changes since the last interaction with the FAA Onboarding Team. Examples include how the USS applicant will better comply with an Operating Rule(s) or continued development on the USS applicant's product.

5. Onboarding Package General Background

Potential USSs are advised that:

5.1. The LAANC program, and its governing documents, are fluid and subject to change as rules and assumptions continue to mature.

5.2. This is not a Screening Information Request (SIR) or Request for Proposals (RFP).

5.3. The FAA does not intend to release an SIR or RFP for LAANC services.

5.4. The FAA is not seeking or accepting unsolicited proposals outside of this application process.

5.5. The FAA will not pay for any information received or costs incurred at any point in the onboarding process.

5.6. Any costs associated with responding to this onboarding package are incurred solely at the interested party's expense.

5.7. Any costs associated with providing any services based on LAANC connectivity are incurred solely at the interested party's expense.

5.8. FAA, at its sole discretion, may contact one, some, all, or none of the applicants and ask for additional information.

5.9. This onboarding package is intended to allow an interested party to exchange data with the FAA. Vendor participation in any informational session is not a promise for future business with the FAA.

5.10. FAA decisions regarding the onboarding of a potential USS are in no way prejudiced by FAA decisions regarding other USSs.

5.11. FAA decisions regarding the onboarding of a potential USS are not subject to protest.

6. Specific Instructions

6.1. Complete an onboarding application package consisting of an application package and a signed MOA. Complete application packages must be sent by email to 9-AJM-USS-Applications@faa.gov when the Application Period is open.

6.1.1. In order for the Government to have a better understanding of the offering, the applicant may provide additional information to support their application. Any supporting information provided must consist of briefing material only and cannot exceed 5 pages. Any embedded video material may not exceed 2 minutes in length.

6.1.2. The applicant must provide the MOA with the application, electronically signed by an authorized and responsible agent of the applicant. The terms of the MOA are identical for all USSs and are non-negotiable.

6.2. The FAA will review all application packages received to determine which applicants may be invited to participate in onboarding activities.

6.3. The selection of applicants invited to participate in the onboarding activities will be at the sole discretion of the FAA and will be based on a combination of factors including, but not limited to, the following:

- The number and nature of applications received
- The ability of an applicant to meet the intent of USS Operating Rules
- The direct relevance of a given applicant's qualifications and experience to the authorizations and notification process

6.4. The FAA will provide an explanation of any decision to applicants.

6.4.1. A decision by the FAA to discontinue the onboarding process at any time will not affect an applicant's ability to resubmit a package at a later onboarding.

6.5. **Application Package Specifics**

6.5.1. The application package must not exceed 20 written pages. The format of the paper must be as follows:

- Time New Roman typeface
- No smaller than standard 12-point font
- 1-inch margins on all sides of text
- Double-spacing on all text

- Tables of Information may be included; text can be no smaller than standard 10-point font
- Written response must be provided in machine-readable form (e.g., searchable PDF, MS word)

6.5.2. The applicant must address its approach to meet each of the USS Operating Rules v. 1.3 by directly addressing each operating rule with as much descriptive detail as possible. Additionally, for a set of operating rules, the applicant may provide additional information on the set of rules within a paragraph. It is not necessary to repeat the rule, but it is necessary to correlate the response to the rule so the FAA can understand the response.

6.5.3. For each operational rule/set of rules, the USS applicant must state whether the product can meet the rule at the time of application submission. Any operating rule or set of rules not met at the time of application submission must include a description of how the USS applicant will meet the rule within 90 days. If any operating rule cannot be met within 90 days, the USS applicant must provide an explanation of when it intends on meeting the rule or why it cannot.

6.5.4. A complete onboarding application package should demonstrate capability, not merely affirm the applicant's capability (e.g.: The response must go beyond the statement that, "XYZ company can provide O&M support.").

6.5.5. The FAA may seek additional clarification on any aspect of the application and reserves the right to determine that an applicant's interpretation of a rule is incorrect. If this determination is made, the FAA will provide clarification, if needed, and encourage the USS applicant to apply during the next, open application period.

6.6. Technical Interview Specifics

6.6.1. The interview will last one (1) hour in length and can be in-person at FAA HQ, remote/virtual, or a combination..

6.6.2. The time should be used to completely demonstrate a working product or mature prototype. This can be accomplished through a live demo of the solution (recommended), recorded video, or screen-shots of the product. If screen-shots are used, the USS applicant will be expected to address the current status and maturity of its product to ascertain if the USS applicant will be ready for Formal Onboarding.

6.6.3. The interview is not a test and it is expected the product will have some functionality not production ready. However, any development gap or immature function of the USS product must be resolved prior to participating in the formal onboarding phase, if an invitation is extended.

6.6.4. **The ICD is provided at the time the applicant is invited to Formal Onboarding.** Any aspect of data-exchange interaction with the government should be simulated during the product demonstration, if applicable. (See Appendix A of the Operating rules for the LAANC High-Level Data Exchange Model)

6.6.5. The Technical Interview is not meant to be a test of the applicant's product, but an opportunity for the USS applicant and the FAA to have a conversation on the current status of the applicant's product, ask questions, and identify areas that will need improvement or need addressing.

6.7. Formal Onboarding Specifics

6.7.1. Each USS invited will be offered two onboarding sessions, which are three hours in duration. The FAA strongly recommends applicants to schedule one session toward the beginning of the Formal Onboarding period and one toward the end.

6.7.2. The Onboarding sessions should be conducted remotely through a web-conference of the USS applicant's choice. While applicants may conduct the formal onboarding session(s) at FAA HQ in Washington, D.C., the FAA discourages this and recommends remote sessions.

7. Scope

The scope of the LAANC product and the data exchange that enables airspace authorizations is contained in the documents posted on the onboarding web portal at https://www.faa.gov/uas/programs_partnerships/uas_data_exchange/.