



Federal Aviation Administration Air Traffic Organization (FAA ATO)

Low Altitude Authorization and Notification Capability (LAANC)

USS Performance Rules

Version 8.0.1

October 2023

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Revision History

Version	Description	Date
1.0	First complete release	6/16/2017
1.1	Major update based on internal and external review	9/18/2017
1.2	Update per prototype evaluation feedback	2/26/2018
1.3	Update following first open onboarding period	12/14/2018
1.4	Removed rule deferrals due to combined onboarding sessions in 2019	2/11/2019
1.5	Update for 2020 1 st onboarding session; Changed the name of the document ["Operating" to "Performance"]	12/3/2019
4.0	Rename version number; new rules (incl. DPP/Attachment E), clarifications (3.2.2i link and ex; 3.4.3; auth text operator; 3.7; updates (3.9.5c; Attachment A); re-ordered Section 3.9; editorial changes	2/12/2020
4.1	Section 3.2.2: Correct 3.2.2i hyperlink; Section 3.7: Update filtering rules; Sections 1.3, 3.2.2: grammar corrections	4/17/2020
5.0	Update for 2021 USS implementation and onboarding	2/5/2021
6.0	Update for 2022 USS implementation and onboarding	2/4/2022
6.1	Section 3.2.2: Updated 3.2.2a Updated hyperlink for UASFM	3/10/2022
6.2	Section 3.4.4: Updated 44809 operations language, changed from "Block" to "Advise"	11/15/2022
7.0	Update for 2023 USS implementation and onboarding	2/3/2023
7.0.1	Section 3.4.4: Updated 3.4.4I, NOTAM API no longer required; Modified Table 2 to include a row for TFRs with FAA sources	3/24/2023
7.0.2	Section 3.11: Updated 3.11a to remove 'etc.' and acronyms, removed 3.11b	4/5/2023
8.0	Clarification of rule 3.4.4n. Added Sections 4 and 5. Updated Attachment E. Added Attachments F through I.	10/18/2023
8.0.1	Added note to Table 4; Section 5.3: Removed rule 5.3c DoD NSUFR; Removed references to FRIAs; Added links and POC information to 5.3a.	10/27/2023

Explanation of Changes

Version 8.0.1 keeps intact the content and basic framework of the LAANC system and how a LAANC USS will interact with the FAA. However, changes were made including issuing new rules and clarifying items. USSs are required to comply with all rule provisions contained in these Performance Rules. Therefore, due to the nature of the changes, all USSs should review this document carefully to ensure awareness and understanding of all provisions set forth.

Functional Performance Rule changes between Versions 8.0 and 8.0.1 primarily relate to the following:

- Updated references of near time to near real-time.
- Modification to 5.1e
- Removed 5.3c (DOD with NSUFR)
- Removed references to FRIAs.
- Addition of a note in 5.2.1 allowing USSs to exclude individual flight restrictions that do not apply to airspace at or below 400 feet AGL.
- Modification to 5.3a to include military base POCs and a link to SGI Waivers for Part 93 East River and Hudson River Exclusions.
- Modification to 5.3j to include Fixed Site POCs.
- Modification to 5.3t. USSs are not required to include a link to LAANC in B4UFLY if LAANC requests in Restricted SUA are blocked all the time.
- Modification to 5.4a data transfer format to only require UTC timestamps.

To assist existing USSs and potential applicants, the cross-reference table below shows what rules have been changed, adjusted, issued, or removed since the last version of these rules. The following chart is not meant to be dispositive. The LAANC USS Performance Rules v8.0.1 takes precedence to the extent there are any discrepancies between the chart below and the enumerated rules.

Previous Rule Number or Section	New Rule Number or Section	Change Summary
5.1e	–	Modification
5.1g	–	Modification
5.3c	–	Removed
5.2.1	–	Addition (Note below Table 4)
5.2.1c	–	Removed FRIA data source
5.3a	–	Modification (Notice Refs/links)
5.3j	–	Modification (Removed FRIA, include Fixed Site POC)
5.3t	–	Modification
5.4a	–	Modification to data transfer format

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1 Introduction

1.1 Background

The FAA's challenge is to foster equitable airspace access while ensuring that critical Air Traffic technical and safety requirements are met for operations in the National Airspace System (NAS). In addition, the FAA seeks to foster an environment for providers of Unmanned Aircraft Systems (UAS) and related services. With the fast pace of small UAS (sUAS) operators entering the market, automation is critical to support the growing demand and to ensure safe and efficient NAS operations.

The FAA developed LAANC to provide sUAS operators an automated, streamlined, and efficient solution to receive airspace authorizations from Air Traffic. LAANC provides near real-time processing of airspace authorizations including automatic approval of requests that are below approved altitudes in controlled airspace. LAANC uses a data exchange framework with UAS Service Suppliers (USSs) to provide quick access to controlled airspace for sUAS operators. This quick access is expected to increase and encourage regulatory compliance. From an Air Traffic perspective, the development of LAANC promotes safe and efficient flight services of sUAS in the NAS.

1.2 Purpose

This document identifies performance rules for non-government organizations that participate in LAANC as USSs. USSs enter into an agreement with the FAA to act as an intermediary between sUAS operators (e.g., remote pilots) and the FAA's LAANC system interface. The FAA provides the ability to incorporate LAANC access into USS service offerings, and USSs provide operator access and validation of operational submissions concerning authorization. LAANC supports innovative USS business models to individual operators and understands other services beyond LAANC might be offered. These performance rules are directed at the provision and management of sUAS operators' airspace authorization requests to Air Traffic.

1.3 Scope

The scope of this document encompasses current LAANC capabilities, including:

- support for automatically approved authorizations using altitude maps established by the FAA around airport facilities,
- mechanism for "Further Coordination (FC)*" of 14 CFR Part 107 ("Part 107") authorizations that cannot be approved automatically,
- management of which facilities are available via LAANC and their associated airspace boundaries,
- providing sUAS operations information to Air Traffic personnel, and
- operations and maintenance functions (e.g., status and metrics, outages, etc.).

*"Further Coordination" are those operations where the operator requests to fly at an altitude that is above the prescribed set limit of the UASFM, but still no higher than 400 feet. For example, if an operator wants to fly up to 250 feet and the prescribed limit is 200 feet, a "Further Coordination" request can be made and sent to Air Traffic for manual approval or denial. Further coordination is only available to 14 CFR Part 107 operations.

Applications for waiver under 14 CFR Part 107, including waivers to permit multiple sUAS with a single controller (swarms), are not currently supported by LAANC.

This document establishes performance rules for USSs. Other aspects of LAANC, such as the technical details of the interface between USSs and the FAA and the design of FAA LAANC systems, are not discussed herein.

The term, “Operator,” is used throughout the LAANC USS Performance Rules. Operator refers to the individual who is responsible for the sUAS flight. Under 14 CFR Part 107, the remote pilot in command is the person responsible for the flight. To avoid duplicative rules that only differ between referring to the remote pilot in command [under 14 CFR Part 107] and operator [under 49 U.S.C. § 44809], the single term operator is used throughout the LAANC USS Performance Rules to refer to the individual who bears responsibility for the UAS flight. Exceptions to this convention may be made in cases where there is a direct link to regulatory language.

2 Referenced Sources

FAA ATO, *Low Altitude Authorization and Notification Capability (LAANC) Concept of Operations*, current version.

FAA ATO, *USS-FAA LAANC API Specification*, current version.

FAA Form 7711-1, *UAS COA*.

14 CFR Part 107, *Small Unmanned Aircraft Systems*.

14 CFR Part 99.7, *Special Security Instructions*.

14 CFR Part 1, *Definitions and Abbreviations*.

Advisory Circular (AC) 00-45, *Aviation Weather Services*, current version.

Advisory Circular (AC) 91-57, *Exception for Limited Recreational Operations of Unmanned Aircraft*, current version.

49 U.S.C. § 44809 (Sec. 349, FAA Reauthorization Act of 2018 (P.L. 115-254)), *Exception for limited recreational operations of unmanned aircraft*.

3 LAANC USS Performance Rules

This section documents the performance rules that each USS is required to follow. The rules identified here only minimally define USS behavior. Further processes, features, and capabilities are up to each USS to determine as they develop their unique service offerings. Rules are identified in brackets with a letter appended to the document section number (in bold text), for example **[1.2.3a]**, **[1.2.3b]**, etc.; the Rule identification numbers are prepended to the sentence of each respective Rule statement. Restatements and clarifications of rules are not given a new identifier.

There are several types of sUAS operations that USSs may handle as a participant in LAANC. It is essential that USSs accurately understand what operations comply (without a waiver) with statutory and regulatory requirements, including: operation type, time of day, location, and maximum altitude. Potential sUAS operations handled by USSs fall into two categories:

- (1) Require authorization, but can be automatically approved (e.g., based on UAS Facility Maps – UASFMs), or
- (2) require authorization through Further Coordination.

The performance rules defined here are designed around corresponding LAANC operation types.

3.1 Operator Access to LAANC

[3.1a] The USS must manage sUAS authorizations as a service to operators. **[3.1b]** The USS must manage users using individual accounts (requiring a login) and reasonably secure identification mechanisms (e.g., usernames/passwords, biometric, etc.).

LAANC is designed for the operator to be the one logging into the USS application, submitting authorization requests, and managing all authorization requests. It is recognized, however, that some entities may have an individual [who is not the operator] responsible for logging into the USS application and who is both submitting and managing authorization requests. Regardless of how an authorization request is submitted and managed, note that:

- (a) All authorization data must be correct on submission, including operator name and operator phone number for contact during the flight, and
- (b) the operator may be contacted through automated means (e.g., email, etc.) with changes such as rescinded authorizations.

[3.1c] The USS must make the following statement available to users in a manner appropriate to its application designs: “[*USS Name*] is a provider of UAS services within the FAA’s Low-Altitude Authorization and Notification Capability (LAANC). LAANC may be used to satisfy compliance with Air Traffic authorization. Information provided here is based on real-time and available projected information on airspace status and airport-specific maps, and that information is subject to change. Planning tools should be checked prior to flight for any changes that could impact the operation.”

[3.1d] The USS must provide the operators with the hyperlink to the FAA Privacy Statement notifying them that the FAA has issued a Privacy Statement regarding information collected

within LAANC. The Privacy Statement is located at:
https://www.faa.gov/uas/programs_partnerships/data_exchange/privacy_statement.

3.2 USS Access to FAA Systems and Information

3.2.1 API-Based Interface Between USS and FAA

LAANC incorporates an FAA system and USS system portions, linked by an Application Programming Interface (API). [3.2.1a] The USS must conform to the *USS-FAA LAANC API Specification* version in effect. This includes details on connecting to the FAA's LAANC system via the Internet. The FAA provides the *USS-FAA LAANC API Specification* to USSs as part of the LAANC onboarding process. Attachment A– USS-FAA High-Level Exchange Model provides an overview of the major data items transferred over the APIs. USS-FAA information transmission is bidirectional and secure. As part of *USS-FAA LAANC API Specification* compliance, the USS must implement and maintain the interface capabilities defined by the *USS-FAA LAANC API Specification*, including the ability to receive secure real-time messages from the FAA.

3.2.2 Required Authoritative Sources of LAANC Geospatial Information

To ensure operators have the most complete and current information possible, the USS must use the listed source for each geospatial item below. Note that each row is an enumerated rule.

Table 1: Required Sources for Certain LAANC Information Types

Rule	Information Type	Authoritative Source (Permanent Link)
[3.2.2a]	UAS Facility Map (UASFM) Data	https://udds-faa.opendata.arcgis.com/datasets/faa-uas-facilitymap-data/explore
[3.2.2b]	Full-Time National Security UAS Flight Restrictions (NSUFRs)	https://udds-faa.opendata.arcgis.com/datasets/0270b9d8a5d34217856cc03aaf833309_0
[3.2.2c]	Part-Time NSUFRs	https://udds-faa.opendata.arcgis.com/datasets/3a4a808a6c634e4e8e4b0ee0d5366da6_0
[3.2.2d]	Class Airspace	https://opendata.arcgis.com/api/v3/datasets/c6a62360338e408cb1512366ad61559e_0/downloads/data?format=geojson&spatialRefId=4326
[3.2.2e]	Airports	https://adds-faa.opendata.arcgis.com/datasets/e747ab91a11045e8b3f8a3efd093d3b5_0
[3.2.2f]	Stadiums	https://adds-faa.opendata.arcgis.com/datasets/67af16061c014365ae9218c489a321be_0
[3.2.2g]	Washington D.C. FRZ	https://adds-faa.opendata.arcgis.com/datasets/67885972e4e940b2aa6d74024901c561_0
[3.2.2h]	U.S. Special Use Airspace	https://adds-faa.opendata.arcgis.com/datasets/dd0d1b726e504137ab3c41b21835d05b_0
[3.2.2i]	Airspace Schedule	https://adds-faa.opendata.arcgis.com/datasets/811863566da44acf91cb42f82ad0ac99_0

[3.2.2j] For the geospatial information above, the USS must use information that is not more than 24 hours old. [3.2.2k] The USS must acquire the data directly from the authoritative source. USSs may not get this data via an intermediary.

Note: The FAA recommends using the GeoJSON publications available from ArcGIS Online. Other formats are available, such as shapefiles, spreadsheets, KML, and a real-time Feature Service – however, these formats and protocols are not as stable and well-structured as the GeoJSON publication.

From the webpages at the permanent links listed in Table 1 above, USSs can find links to download formats and protocols. USSs are not required to download datasets every 24 hours (or less) but are required to ensure the data is not more than 24 hours old. As part of the USS checks for data currency, below is a method for determining the version (date/timestamp) of the dataset. If the date/timestamp has not changed since the last download, USSs are not required to download the dataset for a full check. [3.2.2l] If the full dataset is not downloaded in its entirety, the USS must use the following method for checking currency:

1. **Go to the permanent link.**

Example – Class Airspace:

https://adds-faa.opendata.arcgis.com/datasets/c6a62360338e408cb1512366ad61559e_0

2. **Go to the “Data Source” link, specifying the JSON version.**

Example (note “?f=pjson” at the end):

https://services6.arcgis.com/ssFJjBXIUyZDrSYZ/arcgis/rest/services/Class_Airspace/FeatureServer/0?f=pjson

3. **Extract the “lastEditDate” from the “editingInfo” attribute.**

Example:

“editingInfo”: {“lastEditDate”: 1570714332975}

4. **(Optional) Convert the date/timestamp from epoch milliseconds format to UTC.**

Example:

1570714332975 = October 10, 2019 13:32:12.975

To avoid the potential USS/LAANC-AP dataset record mismatch and potential submission rejections, consider implementing automated mechanisms to ensure a complete dataset record download. For example:

- Query the feature service to retrieve the number of records in the dataset.
- Once the dataset retrieval is completed, compare the number of records initially retrieved to the actual number of records.

3.3 UAS Facility Maps (UASFMs)

UASFMs play a vital role in the LAANC concept of operations. UASFMs identify threshold altitudes at or below which Air Traffic has decided operations can be automatically authorized (provided the operations comply with all other legal provisions). This means that the FAA can

authorize operations within the UASFM's automatically, requiring far less time and human effort than manually processed authorizations.

Note: UASFM's are a shared resource within the FAA and not used for LAANC alone. Other FAA processes, such as non-LAANC authorization and waiver request management, also use UASFM's.

3.3.1 UASFM Changes

[3.3.1a] The USS must apply the appropriate UASFM(s) to each operation. Basemap data includes the definition of UASFM grid cells. UASFM values (such as altitude limits and flags) may change on a daily timeframe, especially to expedite map corrections or time-sensitive adjustments.

3.3.2 UASFM and Airspace Boundaries

UASFM grid cell boundaries are rectangular and airspace boundaries are generally curved. If a UASFM extends beyond a controlled airspace boundary, the airspace boundary has precedence. For example, in the area outside a controlled airspace boundary but covered by a UASFM grid, the UASFM threshold does not apply.

In graphically presenting limits to operators, USSs are encouraged to round off or clip UASFM's to match airspace boundaries where this accurately represents the precedence described above. USSs may also aggregate adjacent grids having the same altitude threshold and/or annotate grids (for example, with authorizing facility association) as deemed effective in their graphical interface designs.

3.3.3 Subdividing Operations

In some cases, USSs and/or operators may wish to or need to subdivide a single operational volume geographically or temporally in controlled airspace into two or more operational volumes for submission to LAANC. Valid reasons to subdivide a single operational volume in controlled airspace are as follows:

1. **Crossing controlled airspace boundaries.**
 - For more information, see Section 3.3.4 and Figure 4.

2. **Part of the operation can be auto-approved and part must be a Further Coordination request.**

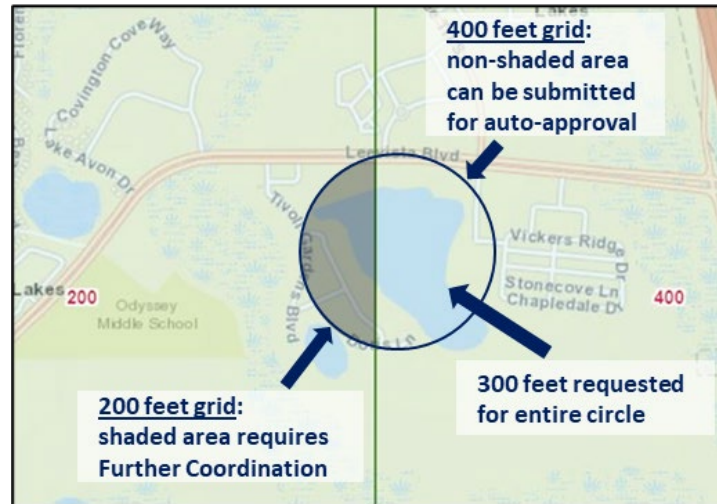


Figure 1: Further Coordination Subdivision

3. **Operation falls within grids with different maximum altitudes, and the operator wants to request authorization for different altitude within each grid.**



Figure 2: Different Maximum Altitude Subdivision

Note: Adjacent UASFM grid cells may have different thresholds and operators may wish to take advantage of this by planning to fly to a higher threshold in one grid than the other. Currently in LAANC, each authorization can only have a single boundary with a single maximum altitude. Planned operations of this type with multiple maximum altitudes must be submitted as two (or more, as necessary) adjacent authorizations.

4. **Operation starts and/or ends at a time that the airspace is controlled, but there is time between the start and end of the operation when the airspace is uncontrolled.** For more information, please see [3.3.5].

[3.3.3a] The USS must subdivide a single operational volume in controlled airspace into multiple authorization submissions only for the enumerated reasons listed above. For example, the USS may not submit separate adjacent authorizations at the same maximum altitude just because they fall within different UASFM grids (see Figure 3).

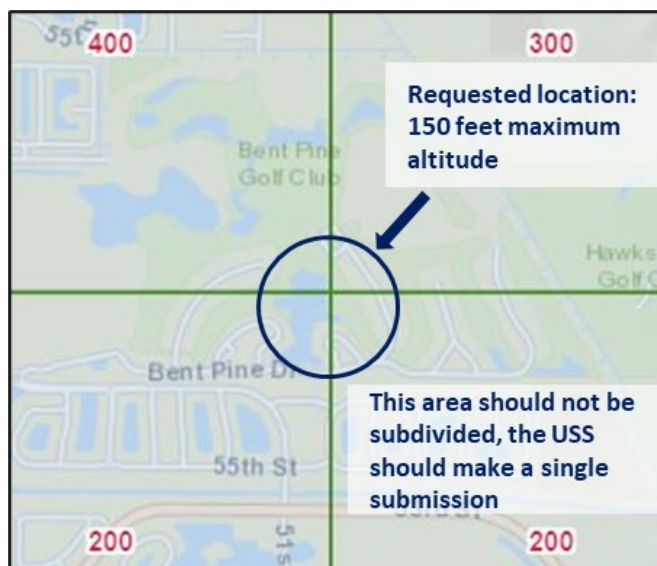


Figure 3: Non-divided Operations

Additionally, operations that are geometrically non-contiguous within a single airspace that result in more than 1 polygon should not be subdivided and should be submitted at separate operations.

Where operational subdivisions coincide with UASFM grid or airspace boundaries, geometric uncertainties can arise. **[3.3.3b]** USSs must use a tolerance to fall cleanly on one side or the other of the relevant boundary and this tolerance must not exceed 10 feet.

3.3.4 Operations that Cross FAA Controlled Airspace Boundaries

FAA authorization boundaries for the purposes of LAANC are expressed by the controlled airspace boundaries. UASFM grids also identify the authorizing facility associated with each maximum auto-approval altitude. All airports that are participating in LAANC have UASFM grids for which they are listed as the LAANC Air Traffic authority. As the grids are geodetically rectangular, some grids cross boundaries and list two (or more) authorities.

[3.3.4a] USSs must subdivide operations as necessary so that each authorization has a single authority. This is critical for Air Traffic since a single operation may need authorizations from different facilities. **[3.3.4b]** Additionally, if any subdivision of the operation falls outside of controlled airspace, the USS must not submit that portion of the operation to the FAA. (The FAA is prohibited from collecting information through LAANC concerning operations in uncontrolled airspace.)

For example, if a proposed operation crosses the airspace boundary between Airport A and Airport B and crosses into uncontrolled airspace, the USS must subdivide the operation along

the airspace boundary and make separate LAANC submissions, to each authority, without transmitting any uncontrolled airspace, as shown in Figure 4.

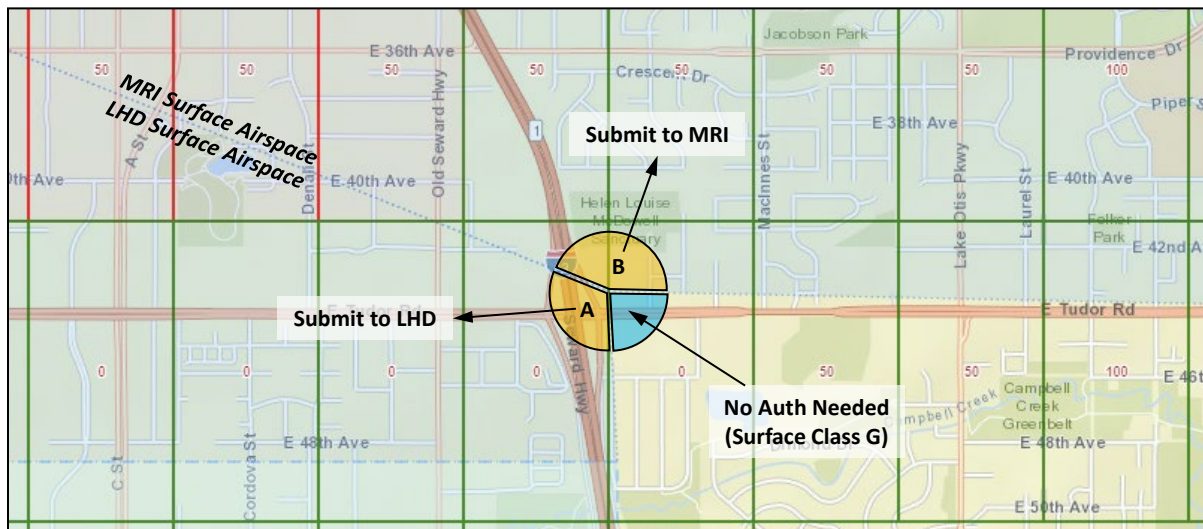


Figure 4: Example Operation Crossing Authorization Boundaries

In this example, the desired operation (whole circle) needs to be subdivided into three regions, including the two different airspace authorities defined by the surface airspace boundaries and the Class G (uncontrolled) region, which does not require an authorization.

Additionally, airspace can go from controlled to uncontrolled based on time as defined in the airspace schedule. For example, if an airspace is controlled from 0600-2200, the airspace is Class G (uncontrolled) from 2200-0600 and does not require authorization. If an operation is created from 2000-0800 in this airspace, authorizations are required for 2000-2200 and from 0600-0800. This operation would require 2 authorizations for the times during which the airspace is controlled.

[3.3.4c] If an airspace identifies an authority that does not correlate to UASFM grids covering the operation, the USS must not submit that portion of the operation to LAANC and clearly indicate to the operator that information on that portion of the flight will not be submitted to the FAA. Section 3.4.3 describes the method for determining the correct airspace volume. **[3.3.4d]** The USS must not make LAANC submissions to facilities/airspace authorities that do not have a UASFM covering the operation in question.

3.3.5 Operations Starting/Ending with Controlled Airspace Schedules

The USS must subdivide the operation temporally when an operation starts and/or ends at a time that the airspace is controlled, but there is time between the start and end of the operation when the airspace is uncontrolled.

Note: Subdividing temporally will only occur at facilities that fluctuate between controlled and uncontrolled airspace according to the airspace schedule.

3.3.6 UASFM Data Flags Indicating Enabled LAANC Operations

Data associated with each UASFM grid includes a “LAANC Ready” flag corresponding to each facility touched by that grid. LAANC Ready flags are either “true” or “false”. A “true” flag means that LAANC is active (accepting authorization submissions) for the associated UASFM grid and facility. A “false” flag means that LAANC is not active and cannot accept authorization submissions for the associated UASFM grid and facility. **[3.3.6a]** The USS must not submit any operations to a given facility that includes a grid with a LAANC Ready flag of “false” for that facility. Furthermore, the USS must advise when a LAANC Grid is disabled and direct users with a message to DroneZone.

Data associated with each UASFM grid also includes an “Enabled” text field, which contains a set of enumerators. An “Enabled” enumerated string indicates the types of authorizations enabled in LAANC for a given facility with airspace touched by that grid. The following values are currently defined:

- “107-AA” = Part 107 authorizations approved automatically
- “107-FC” = Part 107 authorizations processed through Further Coordination
- “44809-AA” = § 44809 authorizations approved automatically
- “44809-FC” = § 44809 authorizations processed through Further Coordination

Note: “44809-FC” is defined, but is currently not available anywhere through LAANC.

Note: The current nominal value for the “Enabled” field is “107-AA,107-FC,44809-AA”. Other enumerated values may be defined in the future.

[3.3.6b] The USS must only submit an operation to a given facility if the “Enabled” field indicates that the operation type is available for that facility through LAANC. For example, an “Enabled” string of “107-AA,44809-AA” indicates that the given facility is accepting the common automatic authorization types but (by omission) is *not* accepting Further Coordination submissions. In this example, USSs should not make any Further Coordination submissions to that facility in that grid.

3.4 Air Traffic Authorizations: General Provisions

Controlled airspace boundaries (Classes B, C, D, and areas within the lateral boundaries of the surface area of Class E airspace designated for an airport[†]) are a determining factor in authorization requirements. To be eligible for automatic approval, the planned operation must fall entirely at or below UASFM maximum altitudes. Planned operations between set UASFM maximum altitudes and 400’ are eligible for Further Coordination. **[3.4a]** The USS must clearly advise the operator if a planned operation is eligible for automatic authorization or if a planned operation is eligible for Further Coordination.

3.4.1 Automatic Approved Authorizations

LAANC processes automatically approved authorizations at participating facilities and for certain classes of sUAS operations. **[3.4.1a]** The auto-approved authorization process must not

[†] Separately from LAANC, the FAA ATO has determined that the only subtype of Class E that applies to UAS authorizations is Class E2.

be considered complete until a confirming digital response is received from the FAA as described in the *USS-FAA LAANC API Specification*.

USSs may submit auto-approved authorizations up to the start time of the operation. **[3.4.1b]** The USS must not make submissions more than 90 days in advance of the planned start of the operation. Note that the FAA prefers that submissions be made with as much lead time as practical.

3.4.2 Further Coordination Authorizations

LAANC processes Further Coordination authorizations at participating facilities and for certain classes of sUAS operations. **[3.4.2a]** A Further Coordination request must not be considered approved or denied until a definitive response has been received from the FAA as described in the *USS-FAA LAANC API Specification*.

Note: Further Coordination requests may contain a short description of the operator's intentions, known as a safety justification, which may aid the FAA in its response. The safety justification field is required, but submitting a blank field is acceptable.

[3.4.2b] Further Coordination requests must be submitted no later than 72 hours prior to the start time of the requested authorization. **[3.4.2c]** Furthermore, the USS must automatically cancel any pending requests for Further Coordination 24 hours before the proposed start time if the FAA has not approved or denied the request. Cancellation must be indicated by the corresponding message to the FAA.

Note: Unlike other cancellations, this automatic request cancellation is initiated by the USS, rather than the operator.

[3.4.2d] The USS must not make submissions more than 90 days in advance. Note that the FAA prefers that submissions be made with as much lead time as practical.

[3.4.2e] The USS must inform operators that Further Coordination is a manual process with commensurate timelines. The FAA's goal is to respond to Further Coordination requests in less than 30 days, but it may take up to 90 days to either approve or deny and, in some cases, requests may expire without resolution. **[3.4.2f]** After submission, the USS must inform the operator that the request is "pending" and discourage following up with Air Traffic by phone as this may result in the request being denied by FAA.

[3.4.2g] If a Further Coordination request is denied, the USS must advise the operator not to submit an operation with the same input parameters as the one that was denied. The USS may suggest that the operator submit the operation to FAA DroneZone in an effort to create an operation that can be approved.

The following is a suggested message to the Operator:

"[Name of operator], the request for Further Coordination was denied by the controlling facility. The operation was denied for reasons that may include any of the following: altitude, date, time, or duration of the requested operation. Re-submitting the same request through

LAANC will result in a denial. To continue pursuit of an authorization for the operation, consider altering part, or all, of the request and re-submitting either through LAANC or through FAA DroneZone. Re-submission through LAANC and/or FAA DroneZone does not guarantee the operation request will be approved.”

3.4.3 LAANC Airspace Transition and Facility Determination

Certain airspace volumes located around airports change class depending on time of day, month of the year, etc. The important transitions for LAANC are when airspaces switch from controlled to uncontrolled or vice versa. These transitions generally occur when the control tower at the airport is a part-time tower and the associated airspace transitions to Class G (uncontrolled) when the tower is closed. The airspace schedule data source (see Section 3.2.2) indicates controlled/uncontrolled transitions. **[3.4.3a]** The USS must apply the published airspace schedule for each operation. The airspace schedule defines the start time and end time for which the airspace volume is active (controlled). If no airspace volume is active, the airspace is Class G (uncontrolled) and thereby authorizations are not required. If no corresponding airspace schedule is found for a given airspace volume, that volume is assumed to be active at all times.

[3.4.3b] The USS must determine the correct facility to which to submit authorization-related messages. The correct algorithm for doing this is described by the enumerated steps below. USSs may implement these steps or an equivalent, alternative process that produces the same result. This algorithm is to be used for the Facility Determination for all authorization-related messages.

1. At any given point of operation, find the encompassing surface-level controlled airspace volume (using the Class Airspace and Airspace Schedule source datasets identified in Section 3.2.2). If more than one active airspace volume is found, use the highest class (for example, Class B supersedes Class C) and disregard lower class(es).
2. Read the “ADHP_ID” property of the identified airspace volume and use it as an index into the Airports dataset (see Section 3.2.2), matching the “GLOBAL_ID” property.
3. The corresponding Airports source dataset entry has “IDENT” and “ICAO_ID” fields that identify the facility to which LAANC authorizations may potentially be sent (see Figure 5 below).
4. The point of operation must also be within a UASFM grid that identifies the same Airports from Step 3 (possibly among several) with the LAANC Ready Flag[‡] set to true. If a matching LAANC-ready facility is not found in the UASFM data, the authorization cannot be provided via LAANC.

[‡] The LAANC Ready Flag in conjunction with the Enabled text will determine if the operation is eligible for authorization for the facility.

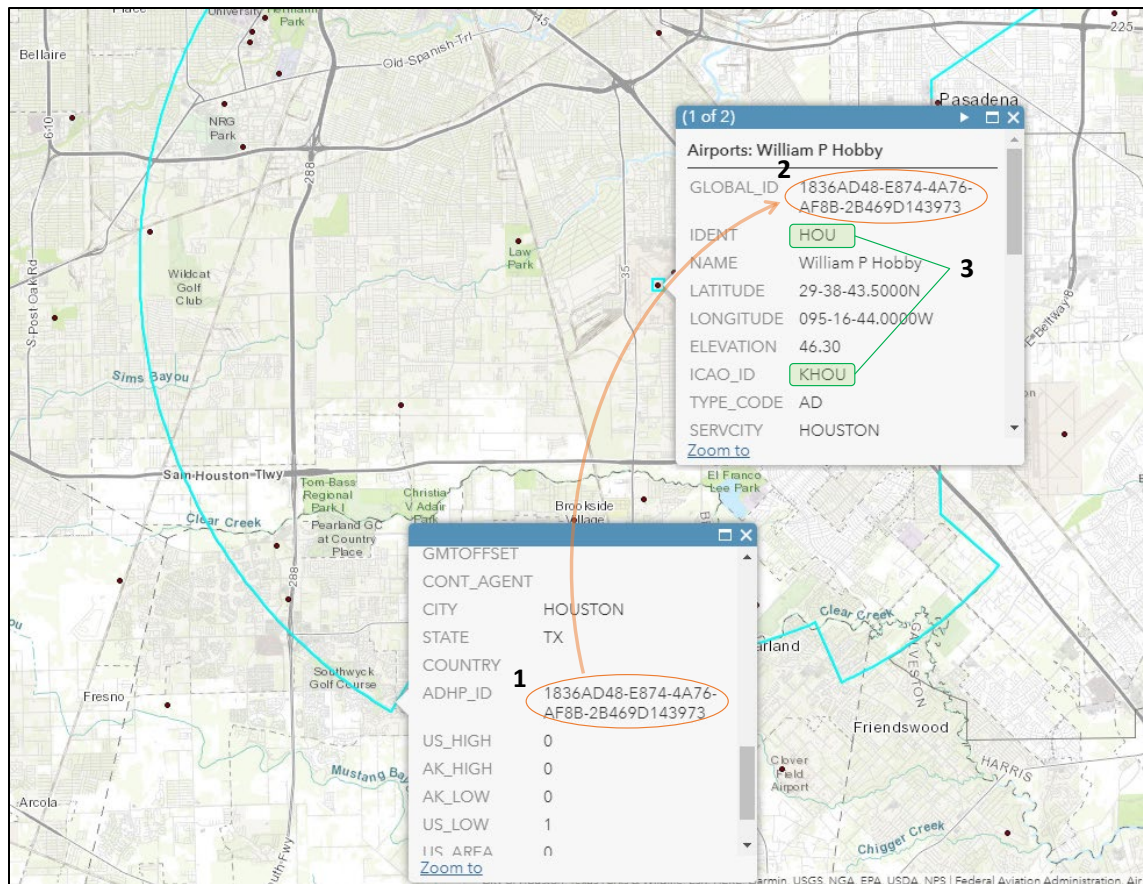


Figure 5: Example Determination of Submission Facility

Note: The airspace volume also has facility identifier fields, but these do not always match the correct submission facility – for example, in Figure 5, the airspace identifies IAH (which is incorrect). Use the algorithm provided above.

3.4.4 Compliance Checks

Operators are required to comply with applicable aeronautical information, including restrictions, published by the FAA and other airspace authorities. At a minimum, USSs are *required* to check for certain applicable restrictions (see Table 3 below) and *may* check for others (see Table 2 below) as part of their service offering to inform operators and prevent unsafe, unauthorized flights.

Potential aeronautical data items include Notices to Airmen (NOTAMs), including Temporary Flight Restrictions (TFRs). Special Use Airspace (SUA) schedule data may also be used. FAA sources for these data items are listed below.

Table 2: Specific FAA Sources of Certain LAANC Information Types

Information Type	FAA Source(s)
NOTAMs (including TFRs)	(1) https://notams.aim.faa.gov/notamSearch/ (2) FAA Flight Service (3) https://api.faa.gov/
TFRs	(1) https://tfr.faa.gov/ (2) FAA Flight Service
SUA Schedule (for geometry, see Table 1)	https://sua.faa.gov/

[3.4.4a] If used, the USS must use aeronautical data that is not more than 24 hours old. **[3.4.4b]** If used, the USS must either acquire the aeronautical data items listed above directly from an FAA source; or, the USS may utilize a non-FAA intermediary *provided* documentation from the non-FAA intermediary is provided demonstrating the aeronautical data is obtained from an official FAA source. **[3.4.4c]** Additionally, if a non-FAA intermediary is used, the USS must prominently display the following text to the operator, “*This graphical representation [if displayed] / aeronautical data [if text] is for informational purposes only. The operator is responsible for referring to an FAA official source for NOTAM information relevant to this operation.*”

NOTAMs, including TFRs, convey many relevant sUAS restrictions. SUAs may also apply to sUAS. “Prohibited” and “Restricted” are important SUA types that generally *do* apply to sUAS. (Note that Restricted SUAs also have associated schedules documenting when they are active or “hot” – these schedules are published on sua.faa.gov and are partially included in the SUA ArcGIS dataset.) The FAA wants to ensure that operators using LAANC are aware of these potential restrictions. These performance rules offer several ways for USSs to address these concerns.

[3.4.4d] Unless all applicable NOTAMs (including TFRs and manually readable NOTAMs) and Prohibited/Restricted SUAs are completely processed by the USS from an FAA source as a service to operators and presented to them, USSs must provide a hyperlink to FAA sources of information for these restrictions.

Note: Certain restrictions sources are known to be difficult to process, such as manually readable NOTAMs (some with complex references to other sources of regulatory text). USSs are advised that the links associated with [3.4.4d] above are a good way to ensure compliance with these rules, even if only as a safety net after processing that is done automatically for operators.

USSs may process NOTAMs (including TFRs) and SUAs, either in part or in whole, as part of their service offering to operators. Processing TFRs and some SUAs is necessary to comply with rules documented below. In addition to required geospatial data (see Section 3.2.2), the USS will also need to employ daylight calculations and other algorithms.

The USS must block certain types of operations within LAANC and advise the operator concerning other types of operations. [3.4.4e] The USS must provide a clear indication that a blocked operation does not have a valid authorization to fly through LAANC. Table 3 below identifies each operation type and the associated USS responsibilities. Note that each row is an enumerated rule.

Table 3: USS Responsibilities for Certain Flight Restrictions

Rule	Operation Type	USS Responsibility	Notes
[3.4.4f]	Operations exceeding 400 feet (§107.51b)	Block	This request type is not supported by LAANC.
[3.4.4g]	Part 107 Operations at night (§107.29)	Advise	USSs must alert operators that at night, operating a sUAS is only permitted if: (1) the operator has completed the required FAA training/testing, and (2) the sUAS is lighted with anti-collision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. USSs must employ a reasonable algorithm for periods of nighttime excluding civil twilight.
[3.4.4h]	44809 Operations at night	Advise	USSs must alert operators that at night, "sUAS should be lighted with anticollision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. [Provide a link to the most recent revision of Advisory Circular 91-57.]" USSs must employ a reasonable algorithm for periods of nighttime excluding civil twilight.
[3.4.4i]	Operations in an NSUFR or the DC FRZ (§107.47)	Block	This request type is not supported by LAANC. NSUFRs may be full-time or part-time (see respective datasets). The DC FRZ is full-time.
[3.4.4j]	Operations in a Prohibited or active Restricted SUA (§107.45)	Block	This request type is not supported by LAANC. USS may use active times from an FAA source (see [3.4.4b]). In order to meet this rule without the burden of processing active times, USSs may block all Prohibited and Restricted SUAs all the time.
[3.4.4k]	Operations at civil twilight (§107.29)	Advise	USSs must alert operators that during civil twilight periods, operating a sUAS is only permitted if the sUAS is lighted with anti-collision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision.

Rule	Operation Type	USS Responsibility	Notes
[3.4.4l]	Operations in a TFR (§107.47)	Advise	Providing FAA link(s) per [3.4.4d] minimally satisfies this rule. USSs may read digital TFR's and display them. Blocking is permissible but not required.
[3.4.4m]	Operations in another type of SUA (MOA, CFA, Warning, Alert, etc.) (§107.49)	Advise	Providing FAA link(s) per [3.4.4d] minimally satisfies this rule. USSs may read digital SUAs for these other types and display them. Blocking is permissible but not required.
[3.4.4n]	Operations within 3NM of a stadium (§107.47)	Advise	At a minimum, USSs must alert users when their operation is within 3NM of an FAA-designated stadium or sporting venue and that operations are prohibited from 1-hr before the scheduled start time until 1-hr after the end of a qualifying event. USSs are not required to determine event times. USSs may offer additional guidance (e.g., event times) on a best-effort basis. Blocking is only permissible from 1-hr before the scheduled start time until 1-hr after the end of a qualifying event but not required.

3.4.5 Class E Surface Area Weather Ceiling Caveat

Due to the relatively lower minimums for Special VFR traffic in Class E airspace, additional situational risks limit the validity of approved authorizations provided via LAANC. Specifically, approvals obtained via LAANC are not valid in Class E Surface Area airspace when the weather ceiling is less than 1,000 feet. (This is a situational limitation of the authorization which cannot be known in advance of the actual operation.) **[3.4.5a]** The USS must inform operators of the Class E limitation when it applies to their planned operation. The authorization caveat is necessary to alert the operator of the spacing rules in Class E airspace which allows for low flying aircraft when a low weather ceiling exists. The USS should also assist in informing the operator about relevant, reliable weather information to include; current and forecast sky condition that describes cloud cover, vertical visibility, or clear skies and the height of the layer indicated in feet Above Ground Level (AGL). Providing a link to an aviation weather source that includes Meteorological Aerodrome Report (METAR) and Terminal Aerodrome Forecasts (TAF) reports is strongly recommended. The USS may also refer to the *Aviation Weather Services* Advisory Circular for detailed information about sky condition reporting criteria (AC 00-45, Section 3.1.5.9).

3.4.6 LAANC Reference Codes

Every authorization referenced by the LAANC API has a reference code. The full reference code is 12 characters long. The first 11 characters make up the base operation reference code and the final character identifies one or more authorizations associated with the operation (for a total of

12 characters). LAANC codes consist of digits (0-9) or letters (A-Z, not case-sensitive, represented as capitals). The first three characters of a LAANC code identify the USS (these codes are assigned by the FAA during onboarding). The next eight characters identify the operation. The last character identifies an authorization or requested authorization within the operation, of which there could be more than one. The code format is illustrated below.

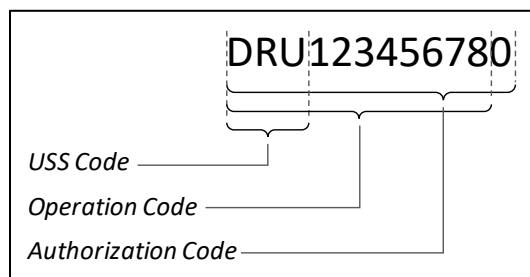


Figure 6: LAANC Code Format

Authorization codes correspond to portions of an operation that are part of the same planned flight but must be subdivided for various reasons (see Section 3.3.2). For example, part of the operation might correspond to one facility and part to another. These require separate authorizations and, therefore, at least two reference codes. With a way to track authorizations as a subset of operations, LAANC can comprehend when different authorizations are part of the same operation, which is beneficial for tracking and managing whole operations.

[3.4.6a] The USS must assign unique reference codes for every applicable submission (see *USS-FAA LAANC API Specification* for details). **[3.4.6b]** The USS must make the reference code available to the operator. Reference codes will be used in the event there is a need to communicate directly with the operator or if the USS needs to interact with the FAA in any capacity.

[3.4.6c] A submitted operation with multiple associated authorizations (or authorization requests) must correspond to submissions that sequentially end in “0”, “1”, ..., “A”, “B”, and so on through “Z”. In the exceedingly rare case that an operation has more than 36 authorizations, a new operation code should be started (which is not required to be sequential).

Note: As each submission must use a unique reference code, codes can never be reused. A code associated with an authorization does not necessarily mean that the authorization is approved or valid. A LAANC reference code may refer to an authorization that is requested, cancelled, invalid, submitted but not confirmed, etc.

3.4.7 Operator Changes

[3.4.7a] The USS must offer the capability to modify the details of a planned operation if such change does not invalidate the authorization or require Air Traffic Further Coordination. For example, extending the duration of an automatically approved authorization is an acceptable modification. **[3.4.7b]** The USS must submit such changes to the FAA using the appropriate interface mechanism (see *USS-FAA LAANC API Specification* for details).

Note: It is minimally acceptable for a USS to offer change capabilities by the operator cancelling a previously approved authorization and constructing a new one to replace it.

Note: The USS-FAA LAANC API Specification describes a more advanced method which preserves the operation Reference Code. When a USS processes an operator request to delete their LAANC data (see [3.10b]), the USS should retain knowledge of the reference codes used – to ensure the reference codes are not reused.

3.4.8 Operator Cancelled or Closed Authorizations

[3.4.8a] The USS must incorporate the capability for any previously submitted requests or authorizations to be “cancelled” by the operator, indicating the operation is no longer planned. Since cancellation indicates that an operation will not be flown (in the future), it can occur only prior to the operation start time.

The USS may offer the capability for the operator to close an operation indicating the operation is complete prior to the submitted end time of the authorization.

3.4.9 Air Traffic Rescinded Authorizations

FAA personnel may rescind any previously approved authorization. “Rescind” means that an authorization is nullified before it begins. Since an authorization can be rescinded only before it begins, rescind can occur only prior to the operation start time.

Messages indicating rescinded authorizations will be initiated by the FAA and communicated to the USS via mechanisms described in the *USS-FAA LAANC API Specification*. Air Traffic cannot be sure that the operator is aware of and responding to a rescinded authorization unless there is acknowledgement from the operator. This acknowledgement is operationally vital to let Air Traffic know that the operator is aware of the change in authorization status and does not intend to fly. **[3.4.9a]** Once a rescind message is received, the USS must initiate resolution with the operator upon receipt that the authorization is rescinded by informing the operator via a standard communication method (e.g., Email or SMS are currently acceptable methods) which must include the appropriate LAANC Reference Code. **[3.4.9b]** USSs must design their messaging and applications to prompt operators in the application to acknowledge authorizations that are rescinded by Air Traffic. **[3.4.9c]** Furthermore, the USS must provide the operator with a means to acknowledge the rescinded authorization. The rescind acknowledgement should occur as soon as possible but may occur any time prior to the operation end time. **[3.4.9d]** When an operation is rescinded, the USS must not allow further submission of authorization requests until the authorization is complete or de-authorized.

Note: Air Traffic may opt to call the operator directly (Air Traffic contacts the operator at the phone number included in the authorization), whether or not they rescind an authorization through LAANC. Should a difference arise, any authorization information provided verbally by Air Traffic supersedes prior authorization information conveyed via LAANC.

3.4.10 Previous Submissions Becomes Invalid

[3.4.10a] When changes occur that could impact the approval status of previous submissions (e.g., change to UASFM, new NSUFR, etc.), the USS must review previous submissions

(regardless of approval status) that have not commenced and could be affected by the change. This review should happen whenever an updated dataset is downloaded or accessed.

[3.4.10b] For previous submissions that are no longer valid, the USS must initiate resolution with the operator upon detection that the authorization is invalid by informing the operator via a standard communication method (e.g., Email or SMS are currently acceptable methods) which must include the appropriate LAANC Reference Code. **[3.4.10c]** USSs must design their messaging and applications to prompt operators in the application to cancel authorizations that are no longer valid whenever they exist. **[3.4.10d]** Furthermore, the USS must provide the operator with a means to cancel each invalid submission. The Invalid Cancel message will alert Air Traffic of the cancellation of each invalid submission. **[3.4.10e]** The USS must not allow further submission of authorization requests until the invalid submission has been completed, de-authorized, or never authorized. Note that the FAA prefers that the operator cancels the invalid submission.

Note: The FAA may or may not detect the invalid status of an authorization before the USS and may or may not send a Rescind message. The USS is required to handle invalid authorizations proactively and direct operators to cancel them so that they are not flown regardless of actions that may be taken by Air Traffic or FAA systems.

3.5 14 CFR Part 107 Authorizations: Specific Provisions

14 CFR Part 107 authorizations are provided via LAANC in accordance with 14 CFR Part 107.41. LAANC supports both auto-approved and Further Coordination types for commercial authorizations. USSs may opt to include one and/or the other type in their service offerings.

[3.5a] When Part 107 authorizations are provided, the USS must generate, display, and store the following text (including the context-dependent information shown in brackets):

“[LAANC Reference Code / FAA Facility Code, Start Date & Time – End Date & Time, Max Alt num ft]: In accordance with Title 14 CFR Part 107.41, your operation is authorized within the designated airspace and timeframe constraints. Altitude limits are absolute values above ground level which shall not be added to the height of any structures. This Authorization is subject to cancellation at any time upon notice by the FAA Administrator or his/her authorized representative. This Authorization does not constitute a waiver of any State law or local ordinance. [Name of operator] is the person designated as responsible for the overall safety of UAS operations under this Authorization. During UAS operations for on-site communication/recall, [name of operator] shall be continuously available for direct contact at [contact phone number] by Air Traffic. Remote pilots are responsible to check the airspace they are operating in and comply with all restrictions that may be present in accordance with 14 CFR 107.45 and 107.49 (a)(2), such as restricted and Prohibited Airspace, Temporary Flight Restrictions, etc. Remote pilots are also responsible for complying with the operating requirements in 14 CFR 107.29(a) when operating at night. Operations are not authorized in Class E airspace when there is a weather ceiling less than 1,000 feet AGL. If the UAS loses communications or loses its GPS signal, it must return to a predetermined location within the operating area and land. The remote pilot in command must abort the flight in the event of

unpredicted obstacles or emergencies.”

Note: The “name of operator” is the name and contact information for the remote pilot in command who is responsible for the operation during the planned operation period as specified in 14 CFR Part 107.

[3.5b] “Start Date & Time” and “End Date & Time” must unambiguously include the year, month, day, hour, minute, and time zone (or UTC).

Along with the text above, the USS is encouraged to include a graphical depiction of the authorization boundary. This graphical depiction ensures that the operator knows the scope of the authorization granted and can distinguish between related individual authorizations. In some cases, the graphical depiction will also clarify that the authorization does not apply to uncontrolled airspace.

[3.5c] The USS must provide a method for quick access to the operation-specific authorization information (including text above) in a form that could be produced by the operator to authorities if necessary.

3.6 49 U.S.C. § 44809 Authorizations: Specific Provisions

49 U.S.C. § 44809 authorizations are provided via LAANC in accordance with 49 U.S.C. § 44809. LAANC supports only the auto-approved type for limited recreational authorizations. USSs may opt to include this type in their service offerings.

[3.6a] When limited recreational authorizations in accordance with 49 U.S.C. § 44809 are provided, the USS must generate, display, and store the following text (including the context-dependent information shown in brackets):

“[*LAANC Reference Code / FAA Facility Code, Start Date & Time – End Date & Time, Max Alt num ft*]: In accordance with 49 U.S.C. § 44809(a)(5), your operation is authorized within the designated airspace and timeframe constraints. Altitude limits are absolute values above ground level which shall not be added to the height of any structures. This Authorization is subject to cancellation at any time upon notice by the FAA Administrator or his/her authorized representative. This Authorization does not constitute a waiver of any State law or local ordinance. [*Name of operator*] is the person designated as responsible for the overall safety of UAS operations under this Authorization. During UAS operations for on-site communication/recall, [*name of operator*] shall be continuously available for direct contact at [*contact phone number*] by Air Traffic. [*Name of operator*] is responsible to check the airspace in which the UAS will be operated and comply with all restrictions that may be present in accordance with § 44809(a)(5), such as restricted and prohibited airspace, night operations, temporary flight restrictions, etc. This authorization is subject to the following conditions: (1) operations are not authorized in Class E surface area airspace when there is a weather ceiling less than 1,000 feet AGL; (2) if the UAS loses communications or loses its GPS signal, it must return to a predetermined location within the operating area and land; (3) night operations are only permitted if the operator has completed FAA training/testing and lighted their sUAS with anti-collision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a

collision. and (4) the person manipulating the controls of the UAS must abort the flight in the event of unpredicted obstacles or emergencies.”

Note: The “name of operator” is the name and contact information for the person who is responsible for the operation during the planned operation period as specified in 49 U.S.C. § 44809.

[3.6b] “Start Date & Time” and “End Date & Time” must unambiguously include the year, month, day, hour, minute, and time zone (or UTC).

Along with the text above, the USS is encouraged to include a graphical depiction of the authorization boundary. This graphical depiction ensures that the operator knows the scope of the authorization granted and can distinguish between related individual authorizations. In some cases, the graphical depiction will also clarify that the authorization does not apply to uncontrolled airspace.

[3.6c] The USS must provide a method for quick access to the operation-specific authorization information (including text above) in a form that could be produced by the operator to authorities if necessary.

3.7 Reasonable Filtering

[3.7a] LAANC must be reasonably protected from spurious submissions that do not align with the intent of LAANC capabilities and associated legal requirements. Attempts should be made to block illegitimate submissions (e.g., excessive, or malicious).

USSs are encouraged to develop innovative means of protecting LAANC from being misused. At a minimum, USSs must implement the following filtering:

- **[3.7b]** Block submissions with an operation area larger, in maximum linear extent, than 10 nautical miles.

Note: “Maximum linear extent” is the diameter for a circular area or the maximum distance between any two points for a polygon area.

- **[3.7c]** Block any submissions associated with a new operation if there are already five (or more) non-pending operations for the same operator (name and phone number) occurring with an overlapping time period. A message should be generated to inform the user of the reason for the block.

Note: A non-pending operation is an operation that does not contain any pending authorization submissions. If an operation contains at least one pending FC request, then the operation is considered a “pending operation”.

- **[3.7d]** Block submissions (automatic or Further Coordination) that are more than 100 nautical miles from an existing non-pending operation for the same operator (name and phone number) for an overlapping time period. Specifically, two operation volumes are more than 100 nautical miles apart if the nearest points between the two volumes are a distance greater than 100 nautical miles from each other. A message should be generated to inform the user of the reason for the block.

Note: This rule relates to non-pending operations. If an operator does not have a prior authorization for an overlapping time period, they may make multiple simultaneous FC requests at larger distances from each other (usually days in advance), allowing for alternatives in case some are not approved.

[3.7e] If a new submission is made when there is one (or more) non-pending operations for the same operator (name and phone number) occurring with an overlapping time period, the USS must display a message to user that there are one or more operations for this operator and time period and unused operations should be cancelled before the operation start time.

The following is a suggested message to the User:

“There are one or more operations for this operator and time period. The operator should cancel all operations that will not be used before the operation start time.”

Note: Minimum and maximum operational durations are constrained per the USS-FAA LAANC API Specification.

3.8 Contingency Operations

[3.8a] If the FAA’s LAANC system is down or inaccessible for any reason, all submissions must be considered temporarily incomplete. Authorization requests cannot be considered successfully submitted until their receipt is indicated by a positive acknowledgement from FAA systems. This approach ensures that the FAA has the opportunity to check that submissions are valid and correct before they are used operationally, as well as ensuring Air Traffic situational awareness.

However, during such outages, the USS can continue planning functions with operators pending final completion once the FAA’s LAANC system is available. Many authorization situations provide ample time for later resubmission prior to the start time of the operation. For example, given a desired automatically approved authorization that starts in 24 hours, there are many opportunities for digital resubmission before the flight commences. The USS could inform the operator that the FAA’s LAANC system interface is temporarily unavailable, and they will be notified when the process is complete (or should check back before flying).

[3.8b] In the event of protracted unavailability of the FAA’s LAANC system lasting more than 4 hours, or at the direction of the FAA, USSs must make the following statement available to users in a manner appropriate to its application design:

The FAA LAANC System is currently unavailable and unable to process new or modify airspace authorization requests. Previously approved airspace authorizations (those issued with an FAA reference number) remain valid unless you are informed otherwise by [USS] or the FAA. The FAA’s DroneZone portal is an alternative source to make new airspace authorization requests. Processing times may vary, and you must receive an authorization approval (issued with an FAA reference number) before you can fly. Visit <https://faadronezone.faa.gov/> for additional details. Updates about the current LAANC outage including return to service information may be available on the FAA’s website or social media channels.

3.9 Operations and Maintenance

Accurate responses to operations and maintenance queries are important. However, perfect alignment in certain cases is not expected, for example due to message transit times or typical processing delays.

3.9.1 System Health and Version(s) Check

To facilitate awareness, the FAA makes a health status and version(s) API endpoint available to USSs, which report the FAA's operational status and system version(s) in effect. **[3.9.1a]** A USS must not automatically call this endpoint with a period less than one minute. (Endpoint calls that are individually, manually triggered are acceptable without a rate limit, with the expectation that these constitute a much smaller load than once per minute on average.)

[3.9.1b] The USS must make specified health and version(s) API endpoints available to the FAA. The FAA will not automatically call this with a period less than one minute. (Endpoint calls that are individually, manually triggered may occur without a rate limit, with the expectation that these constitute a much smaller load than once per minute on average.)

Fields include (see Attachment A for more detail):

- System status (up or down)
- Software / API version(s)
- Critical datasets and version(s)

Health and version information communicated to the LAANC Enterprise Control Center (ECC) will not be shared outside the FAA. A lack of response may be interpreted as a USS system outage.

Note: If USS endpoints do not respond in less than 30 seconds with one or more retries, the FAA may not consider the endpoint available and interpret it as a system outage.

3.9.2 Operational Statistics

The FAA makes an operational statistics API endpoint available to USSs supporting queries about the numbers of previously submitted operations. **[3.9.2a]** A USS must not query the operational statistics endpoint with less than one minute between queries with the exception that anytime the FAA returns an error code, a USS may submit a follow-up query without concern for rate.

[3.9.2b] The USS must make a specified operational statistics API endpoint available to the FAA. The FAA will not submit associated queries with less than one minute between queries with the exception that anytime the USS returns an error code, the FAA may submit a follow-up query without concern for rate.

See Attachment A for a detailed list of Operational statistics.

Note: When calling the USS endpoint, the FAA will not include a start date of more than 30 days in the past.

3.9.3 Open Authorizations Queries

The FAA makes an open authorizations API endpoint available to USSs supporting queries about what currently active and/or open authorizations fall into specified categories. [3.9.3a] A USS must not query the open authorizations endpoint with less than one minute between queries with the exception that anytime the FAA returns an error code, a USS may submit a follow-up query without concern for rate.

[3.9.3b] The USS must make a specified open authorizations API endpoint available to the FAA. The FAA will not submit associated queries with less than one minute between queries with the exception that anytime the USS returns an error code, the FAA may submit a follow-up query without concern for rate.

Open authorization lists include (see Attachment A for more detail):

- Reference codes of Part 107 auto-approved authorizations that are active (issued and termination state has not been reached)
- Reference codes of Section 44809 auto-approved authorizations that are active (issued and termination state has not been reached)
- Reference codes of Part 107 Further Coordination requests that are:
 - Authorized and active
 - Pending
 - Rescinded awaiting acknowledgement.

3.9.4 Operation History Queries

The FAA makes an operation history API endpoint available to USSs supporting queries about the past transitions of a specific operation. [3.9.4a] A USS must not query the operation history endpoint with less than one minute between queries with the exception that anytime the FAA returns an error code, a USS may submit a follow-up query without concern for rate.

[3.9.4b] The USS must make a specified operation history API endpoint available to the FAA. The FAA will not submit associated queries with less than one minute between queries with the exception that anytime the USS returns an error code, the FAA may submit a follow-up query without concern for rate.

Operation history includes (see Attachment A for more detail):

- Submission type, category, and status
- Date and Time of submission, approval, denial, and/or rescind (as applicable)
- Date and Time of change, close, and/or cancel (as applicable)

Note: When calling the USS endpoint, the FAA will not request operation history for an operation that is more than 30 days past its termination state.

3.9.5 Manual Reporting and Auditing

The FAA reports LAANC outages, both scheduled and unscheduled, to the USSs and Air Traffic users through the ECC. Outage information is a critical resource for the FAA to manage

incidents and inquiries concerning LAANC capability functionality. **[3.9.5a]** The USS must notify the ECC of scheduled outages at least 24 hours in advance. **[3.9.5b]** The USS must notify the ECC of unscheduled outages within one hour of detection. The USS will be given contact information (i.e., email address and phone number) of the ECC as part of the onboarding process. Outage status communicated to the ECC will not be shared outside the FAA.

Note: The ECC outage notification can be manual or automated. The notification preference is email, but a phone call is acceptable as well. The ECC will monitor USS system status (see Section 3.9.1) and often will contact the USS directly upon identifying a potential outage.

[3.9.5c] The USS must provide FAA user accounts to the FAA for the following purposes:

1. **Production Environment:** Monitoring of service functionality on a periodic basis for quality control.
2. **Non-Production Environment:** Conduct onboarding testing as applicable.

The FAA user accounts should be provided at no cost to the FAA. The FAA production user account should be the same in nature as a normal operator account. The FAA understands that USS models vary widely – “accounts” may be secured (not accessible to the public), USS systems may be installed on site or on equipment, and different user groups may be differentiated by location or customer base. Regardless of these variations, the FAA must have access to user accounts. The FAA and USS will define appropriate FAA user accounts as part of onboarding. Manual checks will be used to confirm compliance with the USS rules and/or identify a need for re-onboarding in some cases (for example, if service has changed significantly).

[3.9.5d] Additionally, the USS must make available LAANC data records to the FAA. Examples of LAANC data records include, but not limited to, logging interactions of users for operations submissions, operations (i.e., type, time of submission, geometry, submission details including type, time of submission and any subsequent updates, etc.).

[3.9.5e] The USS must respond to the FAA request of the LAANC data records within 1 business day acknowledging the receipt of the request. Upon acknowledgement of receipt of the FAA request, the FAA will work with the USS to determine a reasonable response period for the USS to deliver the LAANC data records.

3.10 Data Protection Plan

[3.10a] In accordance with Article 22, Data Procedural Protections, of the LAANC Memorandum of Agreement, the USS must develop and implement a Data Protection Plan that is available to the FAA upon request (see Attachment E).

[3.10b] When processing an operator request for destruction of LAANC Data, the USS must ensure the operation is in a termination state and also call the Delete Endpoint. The Termination States are a subset of the statuses defined in the *USS-FAA LAANC API Specification* (also reflected in Attachment B). Delete requests cannot be considered successfully submitted until their receipt is indicated by a positive acknowledgement from FAA systems. However, the lack of a positive acknowledgement does not impede the USS from fulfilling the operator’s request to

destroy the user data. The USS can delete the operator's information and call the Delete Endpoint until a positive acknowledgement is received from the FAA system. Calling the Delete Endpoint will impact the Operational Statistics by incrementing the "**countLaancCallSuccess**" field, the "**count107Deleted**" field, and the "**count44809Deleted**" field.

3.11 Display of Information and Publishing of LAANC Related Information

[3.11a] All communication, display of UASFMS, or other displays of information provided to sUAS operators, remote pilots in commands, dispatchers, and others through the LAANC applications must be clear and consistent with all laws, regulations, policy, guidance, and mission of the FAA. All information provided in the LAANC application and other communications sUAS operators, remote pilots in commands, dispatchers, and others is subject to FAA review and USSs must make changes to such communication and information display as directed by the FAA.

4 LAANC Supplemental Data Service Provider (SDSP) Rules

4.1 Overview

These LAANC SDSP Rules are intended to govern all LAANC SDSPs as defined in the LAANC MOA. These LAANC SDSP Rules will be updated as needed. All USSs and LAANC SDSPs must adhere to these rules at all times for the USS to be in compliance with the requirements of the LAANC MOA. Failure of a USS or a LAANC SDSP, who is engaging in LAANC Data sharing with a USS, to remain in compliance with these rules will subject the USS to possible suspension of access to the LAANC AP or termination of the USS's LAANC MOA.

Definition/Types of LAANC SDSP Services

A LAANC SDSP is a third-party entity with no contractual relationship with the FAA who either:

- Type 1: Provides any of the LAANC Data information element(s) to USS, which is used for a LAANC Authorization, but does not receive any LAANC Data information elements back from USS.
- Type 2: Receives any information element of LAANC Data related to a LAANC Authorization from USS that is related to any information element provided by the third-party entity to the USS which was used for that LAANC Authorization.

4.2 Approval Process for a LAANC SDSP

[4.2a] The USS must submit the following information about the LAANC SDSP to the FAA:

- Legal Entity Name and any DBAs
- Business Address
- Company URL
- Individuals or entities that own 25% or more of the legal entity
- Nature of relationship with USS and what type of services the LAANC SDSP will provide
- Representative handling LAANC SDSP Approval – name, title, phone, email
- US State of incorporation

[4.2b] The USS must submit the following information to enable the FAA to assess the validity of a proposed LAANC SDSP:

Type 1 and Type 2:

- Supporting information to establish that proposed LAANC SDSP will act in accordance with LAANC SDSP Performance Rules. This information must include how the LAANC SDSP will meet the LAANC Performance Rules and the steps that the USS has taken to prove that the LAANC SDSP will act in accordance with the LAANC Performance Rules.

Type 2 only:

- If a LAANC SDSP uses a Cloud Service Provider, the Service Level Agreement with the Cloud Service Provider

[4.2c] The FAA will strive to respond to any proposed LAANC SDSP within thirty (30) business days. However, factors such as multiple LAANC SDSP applications filed at the same time or unavailability of approving personnel may delay this process.

[4.2d] The USS may not receive or send any LAANC Data or information related to LAANC Data or send or receive any information related to the LAANC-USS MOA with any proposed LAANC SDSP until the FAA has approved the USS's request to share information with the proposed LAANC SDSP.

[4.2e] Decisions made by the FAA regarding approval of a USS-LAANC SDSP Agreement are subject to the FAA's discretion and are final. The USS should ensure that the supporting information it submits is comprehensive and allow the FAA to determine that the proposed LAANC SDSP will act in accordance with all LAANC rules and regulations. The FAA may request additional or clarifying information regarding a proposed LAANC SDSP. If so requested, the USS must provide any requested information within ten (10) calendar days or the FAA will require the USS to resubmit the LAANC SDSP for approval. **[4.2f]** Once the FAA approves the USS-LAANC SDSP data exchange, the USS and LAANC SDSP must sign the Agreement for Third Party LAANC Integration (Attachment F). Within fifteen (15) business days of the signature the USS must provide to the FAA:

- Signed Agreement for Third Party LAANC Integration
- Data Agreement

[4.2g] The FAA reserves the right to rescind approval of any Agreement for Third Party LAANC Integration at any point for any reason. If an Agreement for Third Party LAANC Integration approval is rescinded, the USS must stop receiving or sending any information approved by the Agreement for Third Party LAANC Integration as soon as possible, not to exceed 24 hours excluding weekends and holidays.

4.3 USS Oversight of LAANC SDSPs

[4.3a] The USS must conduct regular audits, no less than annually, to ensure compliance with the LAANC Performance Rules by the LAANC SDSP and associated applications.

[4.3b] Audit results will be documented, and any non-compliance issues will be reported to the FAA and addressed immediately.

[4.3c] Audit results of each LAANC SDSP will be provided to the FAA upon request.

[4.3d] The USS must provide the following to the FAA upon request for each LAANC SDSP:

Type 1:

- Signed Agreement for Third Party LAANC Integration
- Cloud Service Provider Service Level Agreement (if applicable)

- Screenshots of displays that satisfy the requirements of the LAANC SDSP Performance Rules

[4.3e] The USS must provide the following to the FAA upon request for each LAANC SDSP:

Type 2:

- Signed Agreement for Third Party LAANC Integration
- Cloud Service Provider Service Level Agreement (if applicable)
- Screenshots of displays that satisfy the requirements of the LAANC SDSP Performance Rules

[4.3f] The FAA reserves the right to request additional documentation from the USS.

4.4 LAANC SDSP Performance Rules

4.4.1 Type 1 Only

[4.4.1a] LAANC SDSP Type 1 must comply with the Applicable LAANC Performance Rules as identified in Attachment G.

[4.4.1b] LAANC SDSP Type 1 must display the following information:

[Name of LAANC SDSP] is **NOT** an FAA-approved USS. The information provided here may be incorrect. [Name of LAANC SDSP] is working with [Name of USS] and [Name of USS] must be consulted for the most accurate information. The UAS Operator is responsible for following all airspace rules, regulations, and laws. Visit [insert hyperlink] to view a list of FAA-approved USSs.

[4.4.1c] The language in Rule 4.4.1b must be displayed in the application so that it is visible to the user and consistent with the design of the user interface.

4.4.2 Type 2 Only

[4.4.2a] LAANC SDSP Type 2 must comply with the Applicable LAANC Performance Rules as identified in Attachment G.

[4.4.2b] LAANC SDSP Type 2 must display the following information:

[Name of LAANC SDSP] is **NOT** an FAA-approved USS. The information provided here may be incorrect. [Name of LAANC SDSP] is working with [Name of USS] and [Name of USS] must be consulted for the most accurate information. The UAS Operator is responsible for following all airspace rules, regulations, and laws. Visit [insert hyperlink] to view a list of FAA-approved USSs.

[4.4.2c] The language in Rule 4.4.2b must be displayed in the application so that it is visible to the user and consistent with the design of the user interface.

[4.4.2d] If LAANC SDSP receives any sort of authorization status (whether the LAANC authorization code or an equivalent status flag) from the USS, the LAANC SDSP must receive, and display (if applicable) updated notifications if the LAANC authorization status changes.

4.4.3 All Types

[4.4.3a] The USS is responsible for all actions of a LAANC SDSP. If a LAANC SDSP violates or is otherwise not in compliance with any LAANC SDSP Performance Rule, it will be treated as if the USS has committed such violation or failed to comply.

[4.4.3b] The LAANC SDSP must comply with the following articles from the MOA for LAANC Between FAA and USS:

- Article 12: Warranties
- Article 14: Limitation of Liability
- Article 16: Civil Rights Act
- Article 17: Officials Not to Benefit
- Article 18: Protection of Information
- Article 20: Data Location and Protection – Type 2 only
- Article 22: Data Procedural Protections – Type 2 only

[4.4.3c] The USS bears the security responsibility of the LAANC SDSP to protect against potential threats, intrusions, and unauthorized access.

[4.4.3d] USS will work with the LAANC SDSP to ensure compliance and capability with such new features and requirements.

5 B4UFLY USS Performance Rules

This section documents the additional performance rules that each B4UFLY USS is required to follow. Only those USSs that have signed the B4UFLY Addendum to the LAANC Memorandum of Agreement are required to comply with the rules in this section.

The rules identified here only minimally define B4UFLY USS behavior. Each B4UFLY USS may develop and offer additional processes, features, and capabilities as they develop their unique service offerings, but may not conflict with the rules listed below or in other sections of this document. Restatements and clarifications of rules are not given a new identifier.

[5a] The B4UFLY USS must comply with the applicable LAANC USS Performance Rules as listed in Attachment I.

5.1 Operator Access to B4UFLY

[5.1a] The USS must provide free access to B4UFLY.

[5.1b] The USS must not collect any PII or require any login or account creation from users to access B4UFLY.

[5.1c] B4UFLY must be available, at a minimum, to 44809 Recreational Users.

[5.1d] The USS must include a link to LAANC for operations determined to require an authorization in an area that is LAANC enabled. The USS can determine whether to require login and/or payment at that point.

[5.1e] The USS must make the following general disclaimers available to users in a manner appropriate to its application designs.

- **[5.1f]** *“B4UFLY does not provide all necessary tools required to perform a complete Preflight Assessment. Operators/Users should identify the legal requirements and recommendations appropriate to the operation, whether those required under 14 CFR 107.49 or recommended by an FAA-recognized unmanned aircraft Community Based Organization in accordance with 49 USC 44809.”*
- **[5.1g]** *“Temporary Flight Restriction (TFR) and other data are updated periodically to reflect near real-time conditions. TFR information may not be provided in advance. Confirm data currency through alternate sources (e.g., [tfr.faa.gov](https://www.faa.gov/tfr), [1800wxbrief.com](https://www.1800wxbrief.com)) and contact your local Flight Service Station for interpretation of TFR data.”*
- **[5.1h]** All flights must be 400 feet AGL or lower, depending on UASFM maximum allowable altitude.
- **[5.1i]** Advisories provided are limited to a 2 nautical mile radius from the location of the pin drop.

- **[5.1j]** “[USS Name] is a provider of UAS services for the FAA’s B4UFLY. B4UFLY is an airspace awareness tool. Information provided here is based on near real-time and available projected information on airspace status and airport-specific maps, and that information is subject to change. Planning tools should be checked prior to flight for any changes that could impact the operation.”

[5.1k] The B4UFLY USS must include the safety information and resources included in Attachment J.

5.2 Geospatial Information

5.2.1 Required Authoritative Sources of B4UFLY Geospatial Information

In addition to the Required Authoritative Sources of LAANC Geospatial Information (see Table 1), B4UFLY USSs must use the following additional geospatial sources in Table 4. Note that each row is an enumerated rule.

Table 4: Required Sources for Certain B4UFLY Information Types

Rule	Information Type	Authoritative Source
[5.2.1a]	Military Training Routes (MTRs)	https://adds-faa.opendata.arcgis.com/datasets/faa::mtr-segment-1/about
[5.2.1b]	Recreational Flyer Fixed Sites	https://adds-faa.opendata.arcgis.com/datasets/faa::recreational-flyer-fixed-sites/about
[5.2.1c]	Part 93 Special Air Traffic Rules	https://adds-faa.opendata.arcgis.com/datasets/faa::airspace-boundary-1/explore
[5.2.1d]	TFRs	(1) https://tfr.faa.gov (2) FAA Flight Service
[5.2.1e]	NOTAMs	(1) https://notams.aim.faa.gov/notamSearch/ (2) FAA Flight Service (3) https://api.faa.gov/
[5.2.1f]	National Parks	https://www.nps.gov/subjects/developer/api-documentation.htm
[5.2.1g]	SUA Schedule (For geometry, see Table 1)	https://sua.faa.gov/

Note: For any data source in Table 4 associated with a specific altitude range, it is permissible but not required to exclude individual flight restrictions that do not apply to airspace at or below 400 feet AGL.

[5.2.1h] For the geospatial information in Table 4 above, the USS must use aeronautical data that is not more than 24 hours old.

[5.2.1i] The USS must either acquire the aeronautical data items listed above directly from an FAA source; or, the USS may utilize a non-FAA intermediary *provided* documentation from the non-FAA intermediary is provided demonstrating the aeronautical data is obtained from an official FAA source.

5.3 Airspace Awareness

Controlled airspace boundaries (Classes B, C, D, and areas within the lateral boundaries of the surface area of Class E airspace designated for an airport) are a determining factor in authorization requirements.

Table 5 identifies each operation type and the associated USS responsibilities and messaging. Note that each row is an enumerated rule, with the higher-level rule taking priority over subsequent rules.

Table 5: B4UFLY USS Messaging Hierarchy

Rule	Airspace type	Notice type	Notice text	Notice Refs/links
[5.3a]	FRZ, Prohibited, SSR, NSUFR, military bases, National Security Areas, Part 93 Special Air Traffic Rules (<i>excluding DC SFRA</i>)	 WARNING: Flight Restricted Airspace	No person may operate a small unmanned aircraft in restricted airspace unless that person has permission from the appropriate authority. Individuals violating any of these restrictions may be subject to FAA and/or law enforcement action.	No links to LAANC or FAADroneZone Link to the applicable authoritative source <i>DC FRZ:</i> DC Area Prohibited & Restricted Airspace Federal Aviation Administration (faa.gov) <i>Hudson/East River Exclusion Area:</i> FAA Request Form for Expedited SGL Waiver or Authorization for UAS Operation <i>Military Bases:</i> Include POC field from authoritative source

Rule	Airspace type	Notice type	Notice text	Notice Refs/links
[5.3b]	Active TFRs Active Restricted Areas	 WARNING: Flight Restricted Airspace	No person may operate a small unmanned aircraft in restricted airspace unless that person has permission from the appropriate authority. Individuals violating any of these restrictions may be subject to FAA and/or law enforcement action.	Go to LAANC (if applicable) Link to the applicable NOTAM/TFR
[5.3c]	DC SFRA	 CAUTION: Special Flight Rules Area	Flying a drone for recreational or non-recreational use between 15 and 30 miles from Washington, D.C. is allowed under specific operating conditions. Individuals violating any of these restrictions may be subject to FAA and/or law enforcement action.	Go to LAANC (if applicable) Link to: DC Area Prohibited & Restricted Airspace Federal Aviation Administration (faa.gov)
[5.3d]	Scheduled TFRs Scheduled Restricted Areas	 CAUTION: Flight Restricted Airspace	No person may operate a small unmanned aircraft in restricted airspace unless that person has permission from the appropriate authority. Individuals violating any of these restrictions may be subject to FAA and/or law enforcement action.	Go to LAANC (if applicable) Link to the applicable NOTAM/TFR
[5.3e]	Class B, C, D, or E SFC	 CAUTION: Controlled Airspace	You must have an airspace authorization from the FAA. Use LAANC. Prior to flight, the remote pilot in command must assess local airspace and any flight restrictions.	Go to LAANC

Rule	Airspace type	Notice type	Notice text	Notice Refs/links
[5.3f]	MOA, MTRs, Warning Areas, Alert Areas	 CAUTION: Special Use Airspace	This airspace may contain more air traffic or fast military aircraft. Maintain extra vigilance and awareness when flying. Prior to flight, the remote pilot in command must assess local airspace and any flight restrictions.	Go to LAANC (if applicable) Link to the applicable authoritative source
[5.3g]	Within 3 NM of FAA-designated stadiums (FDC NOTAM 0/0367)	 CAUTION: Stadium	Flight operations within 3NM of an FAA-designated stadium are restricted from 1 hour before the planned start time until 1 hour after the end of any qualifying event. Check the stadium schedule prior to any flight operations.	Link to: Drones Are Prohibited In and Around Stadiums Federal Aviation Administration (faa.gov)
[5.3h]	Controlled airspace without a LAANC enabled UASFM	 CAUTION: Controlled Airspace	You must have an airspace authorization from the FAA. LAANC is not presently available in this area, use FAADroneZone. Prior to flight, the remote pilot in command must assess local airspace and any flight restrictions.	Go To FAADroneZone
[5.3i]	Inside National Parks	 CAUTION: National Park	Check with the National Park Service prior to flight. Prior to flight, the remote pilot in command must assess the local airspace along with any other takeoff, landing, and flight restrictions.	Link to National Parks: https://www.nps.gov/orgs/aviationprogram/upload/unmanned-aircraft-in-national-parks.pdf

Rule	Airspace type	Notice type	Notice text	Notice Refs/links
[5.3j]	Class G, Recreational Flyer Fixed Sites	 CLEAR TO FLY	No active advisories. Airspace authorization not required. Prior to flight, the remote pilot in command must assess local airspace and any flight restrictions	Fixed Sites link to: https://www.faa.gov/uas/recreational_flyers <i>Fixed Sites:</i> Include POC field from authoritative source

Further rules regarding display of information are included below.

[5.3k] The rules in Table 5 are not mutually exclusive.

[5.3l] USSs must provide a hyperlink to FAA sources of information associated with the rules listed in Table 5.

[5.3m] All applicable NOTAMs (including TFRs and manually readable NOTAMs) and Prohibited/Restricted SUAs must be completely processed by the USS from Table 4 as a service to operators and presented to them.

[5.3n] The B4UFLY USS should display the UASFM maximum allowable altitudes.

[5.3o] All airspaces, airports, airstrips, helipads, etc., must be displayed with the appropriate distance from pin drop up to a 2 nautical mile radius.

[5.3p] Any airspace type listed in Table 5 within a 2 nautical mile radius of the pin drop must be displayed to the user with the appropriate distance from the pin drop.

[5.3q] The UASFM must be displayed regardless of the airspace schedule.

[5.3r] The schedule must be included for time sensitive notices (if applicable).

Certain airspace volumes located around airports change class depending on time of day, month of the year, etc. The important transitions are when airspaces switch from controlled to uncontrolled or vice versa. These transitions generally occur when the control tower at the airport is a part-time tower and the associated airspace transitions to Class G (uncontrolled) when the tower is closed. The airspace schedule data source (see Table 1) indicates controlled/uncontrolled transitions.

[5.3s] The USS must apply the published airspace schedule for each operation. The airspace schedule defines the start time and end time for which the airspace volume is active (controlled). If no airspace volume is active, the airspace is Class G (uncontrolled). If no corresponding airspace schedule is found for a given airspace volume, that volume is assumed to be active at all times.

[5.3t] The USS may use active times from an FAA source (see Table 4) when processing TFRs and Restricted SUAs. In order to meet this rule without the burden of processing active times, USSs may show all TFRs and Restricted SUA as active all the time. If the USS blocks LAANC requests within Restricted SUA all the time, a link to LAANC is not required for operations in active or scheduled Restricted SUA.

[5.3u] In the event of protracted unavailability of the FAA's LAANC system lasting more than 4 hours, or at the direction of the FAA, B4UFLY USSs must make the following statement available to users in a manner appropriate to its application design:

The FAA LAANC System is currently unavailable and unable to process new or modified airspace authorization requests.

Previously approved airspace authorizations (those issued with an FAA reference number) remain valid unless you are informed otherwise by [USS] or the FAA. The FAADroneZone portal is an alternative source to make new airspace authorization requests. Processing times may vary, and you must receive an authorization approval (issued with an FAA reference number) before you can fly. Visit <https://faadronezone.faa.gov/> for additional details.

B4UFLY users may experience inaccurate or incomplete aeronautical information during a LAANC outage and are advised to check or update their data as soon as practical following return to service notification.

Updates about the current LAANC outage including return to service information may be available on the FAA's website or social media channels.

5.4 FAA Access to B4UFLY Data

[5.4a] The USSs must provide a data report as a CSV file with formatting shown in Figure 7. The data reports are to be submitted once per month to the FAA. The monthly data submitted to the FAA must only contain all required data points to include the latitude and longitude of each pin drop within the time range beginning on the first day of the month at 12:00:00 0.000 AM until the last day of the month, ending at 11:59:59 0.000 PM in UTC times. This data report must be submitted to the FAA at LAANCQC@faa.gov by the close of the first business day of every month.

Latitude	Longitude	Timestamp(UTC)
-14.331654	-170.711521	2020-01-05 15:00:00 0.000 Z
-14.216104	-169.423567	2020-01-06 18:00:00 0.000 Z

Figure 7: Data Transfer Format

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Attachment A – USS-FAA High-Level Exchange Model

The reference material below is intended to assist stakeholders in understanding, planning, and scoping LAANC-related systems and services. Information items listed are high-level and not technically exhaustive (additional data may be required). This material is intended to be synchronized with the relevant *USS-FAA LAANC API Specification*, but in any cases of perceived or actual conflict, the *USS-FAA LAANC API Specification* has precedence.

Create Auto Authorization (USS → FAA)

- Operator Name (first and last)
- Operator Phone Number (during operation)
- Reference Code
- Start Date/Time (UTC)
- Duration
- Maximum Altitude (AGL)
- Boundary Geometry (polygon or point/radius)
- Authorizing Airport
- UASFM Grids Touched (IDs and last edit dates)
- Airspace Classes Touched
- Registration Number (Optional)

Request Authorization [Further Coordination] (USS → FAA)

- Operator Name (first and last)
- Operator Phone Number (during operation)
- Reference Code
- Start Date/Time (UTC)
- Duration
- Maximum Altitude (AGL)
- Boundary Geometry (polygon or point/radius)
- Authorizing Airport
- UASFM Grids Touched (IDs and last edit dates)
- Airspace Classes Touched
- Safety Justification (text)
- Registration Number (Optional)

**Auto Authorization Update
(USS → FAA)**

- Operator Name (first and last)
- Operator Phone Number (during operation)
- Reference Code
- Start Date/Time (UTC)
- Duration
- Maximum Altitude (AGL)
- Boundary Geometry (polygon or point/radius)
- Authorizing Airport
- UASFM Grids Touched (IDs and last edit dates)
- Airspace Classes Touched
- Registration Number (Optional)

**Operation Action Response
(FAA → USS)**

- Type of Operation
- Reference Code
- Approved or Denied
- Status Date Time

**Operation Cancelled by Operator
(USS → FAA)**

- Reference Code

**Operation Closed by Operator
(USS → FAA)**

- Reference Code

**Operation Deleted by Operator
(USS → FAA)**

- Reference Code

**Operation Automatically Cancelled
(USS → FAA)**

- Reference Code

**Operation Invalidated (Invalid Cancel)
(USS → FAA)**

- Reference Code

Authorization Rescinded (FAA → USS)
▪ Reference Code

Authorization Rescind Acknowledgement (USS → FAA)
▪ Reference Code

Delete Operation (USS → FAA)
▪ Reference Code

No Operation (USS → FAA)
▪ Reference Code

System Health and Versions (USS → FAA) or (FAA → USS)
▪ System Status (UP or DOWN) ▪ Codes (FAA only) ▪ System Version ▪ API Version ▪ UASFM Dataset URL and Last Edit Date ▪ Airspace Dataset URL and Last Edit Date ▪ Airports Dataset URL and Last Edit Date ▪ FT NSUFR Dataset URL and Last Edit Date ▪ PT NSUFR Dataset URL and Last Edit Date ▪ Stadiums Dataset URL and Last Edit Date ▪ FRZ Dataset URL and Last Edit Date ▪ SUA Dataset URL and Last Edit Date ▪ Airspace Schedule Dataset URL and Last Edit Date

Operation Statistics (USS → FAA) or (FAA → USS)
▪ Count of 107 Operations Submitted ▪ Count of 107 Auto-Approved Submitted ▪ Count of 107 Further Coordination Submitted ▪ Count of 107 Further Coordination Approved ▪ Count of 107 Further Coordination Denied ▪ Count of Automatically Cancelled ▪ Count of 107 Further Coordination Expired ▪ Count of 107 Rescinded ▪ Count of 107 Rescind Acknowledged ▪ Count of 107 Cancelled ▪ Count of 107 Invalid Cancel ▪ Count of 107 Close ▪ Count of 107 Deleted ▪ Count of 44809 Operations Submitted ▪ Count of 44809 Auto-Approved Submitted ▪ Count of 44809 Rescinded ▪ Count of 44809 Rescind Acknowledged ▪ Count of 44809 Cancelled ▪ Count of 44809 Invalid Cancel ▪ Count of 44809 Close ▪ Count of 44809 Deleted ▪ Count of Successful API Calls

Open Authorizations (USS → FAA) or (FAA → USS)
▪ List of open authorizations including: ▪ Reference Code ▪ Submission Type (AA, FC) ▪ Submission Category (107, 44809) ▪ State (Authorized, Pending, Rescinded_Awaiting)

Operation History (USS → FAA) or (FAA → USS)
▪ Submission Type (AA, FC) ▪ Submission Category (107, 44809) ▪ Submission Date and Time ▪ Status (Authorized, Complete, Pending, Never Authorized, De-Authorized, Rescinded_Awaiting) ▪ Approval Date and Time (if applicable) ▪ Denial Date and Time (if applicable) ▪ Change Date and Time (if applicable) ▪ Rescind Date and Time (if applicable) ▪ Cancel Date and Time (if applicable) ▪ Rescind Acknowledgement Date and Time (if applicable) ▪ Close Date and Time (if applicable)

Attachment B – LAANC States and Transitions

The reference material below is intended to assist stakeholders in understanding LAANC-related terminology concerning authorization processes. The information provided here is high-level and may not be technically exhaustive. For example, unsuccessful transitions are not shown and do not count (such as API rejections).

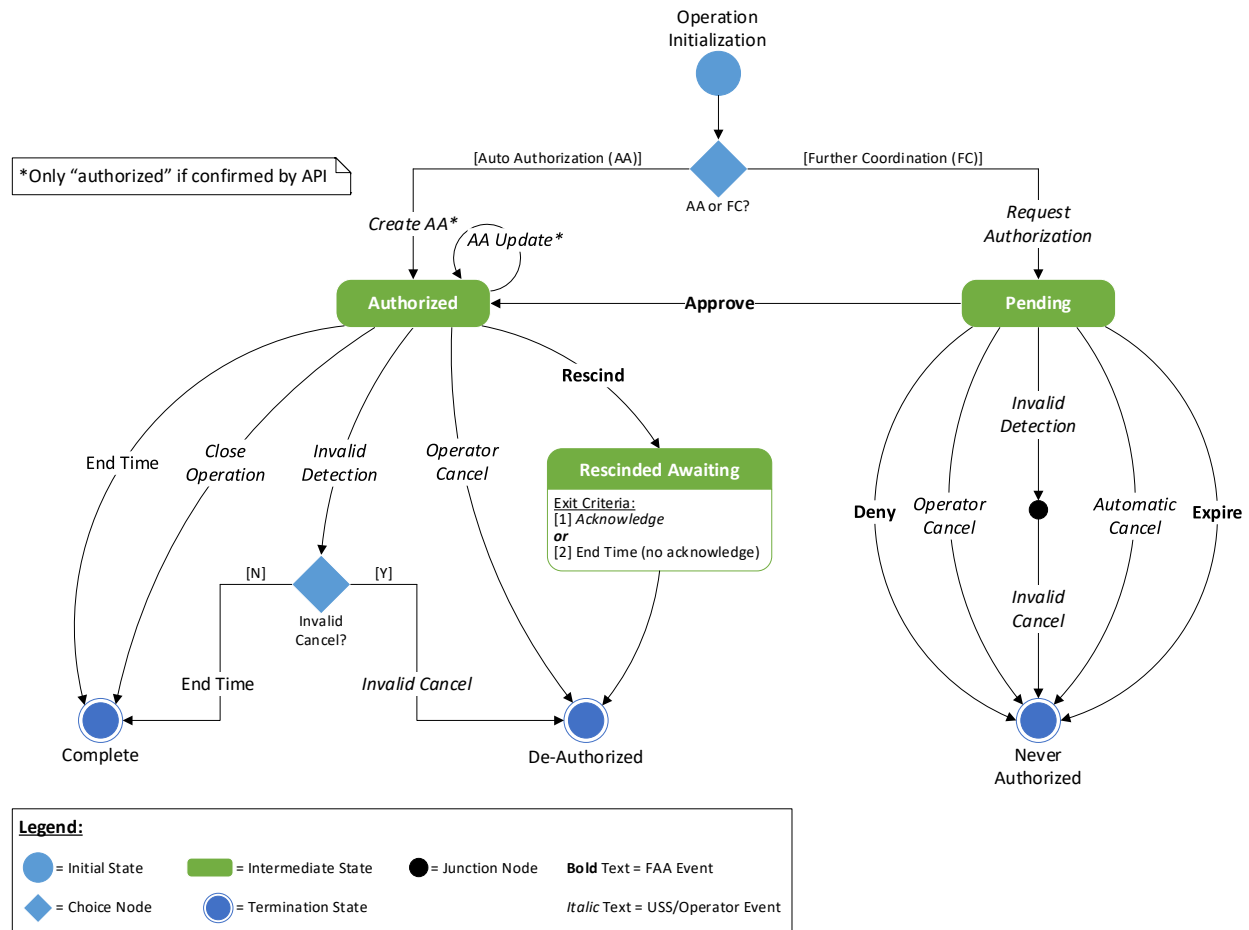


Figure 8: LAANC State-Transition Diagram

Note: In Figure 7 above, the junction node represents transition of the invalidation steps as part of the invalidation sequence of events. The steps and sequence of the invalidation event consist of an "invalid detection" performed by the USS, followed by an "invalid cancel" performed by the operator. The operation remains in a pending state until the invalidation sequence is fully complete, or other action (as depicted) changes the state of the operation.

Event Responsibility Matrix

Table 6: LAANC Event Responsibility Matrix

Event	Operator	USS	LAANC	ATM
Create Auto Authorization (AA)	✓	✓		
Auto Authorization (AA) Update	✓	✓		
Request Authorization (FC)	✓	✓		
Reject			✓	
Approve			✓	✓
Deny			✓	✓
Expire			✓	
Operator Cancel	✓	✓		
Automatic Cancel		✓		
Rescind			✓	✓
Rescind Acknowledgement	✓	✓		
Close Operation	✓	✓		
Invalid Detection		✓		
Invalid Cancel	✓	✓		
Delete Operation	✓	✓		

Attachment C – Onboarding Information

Approved LAANC USSs are required to demonstrate the capability to provide LAANC services on all available product configurations (i.e., 107-AA, 107-FC, 44809-AA) and platforms (e.g., Web-Based application, Android/iOS application, etc.) to verify compliance of all USS Performance Rules. Prospective LAANC USSs must complete the LAANC USS New Applicant Onboarding Process to demonstrate compliance and become approved LAANC USSs, while approved LAANC USSs must participate in Upgrade Onboarding.

Upgrade Onboarding verifies that approved LAANC USSs adhere to the most recent FAA approved version of the Performance Rules. Per MOA Section 2.3.1.8, USSs are given the opportunity to review new rules and raise objections and/or concerns about the changes. Once objections and/or concerns, if any are made, are adjudicated by the FAA, the new rules are automatically incorporated as an attachment and the upgrade process begins. The USS Upgrade Onboarding timeline is shown in Figure 8 below.

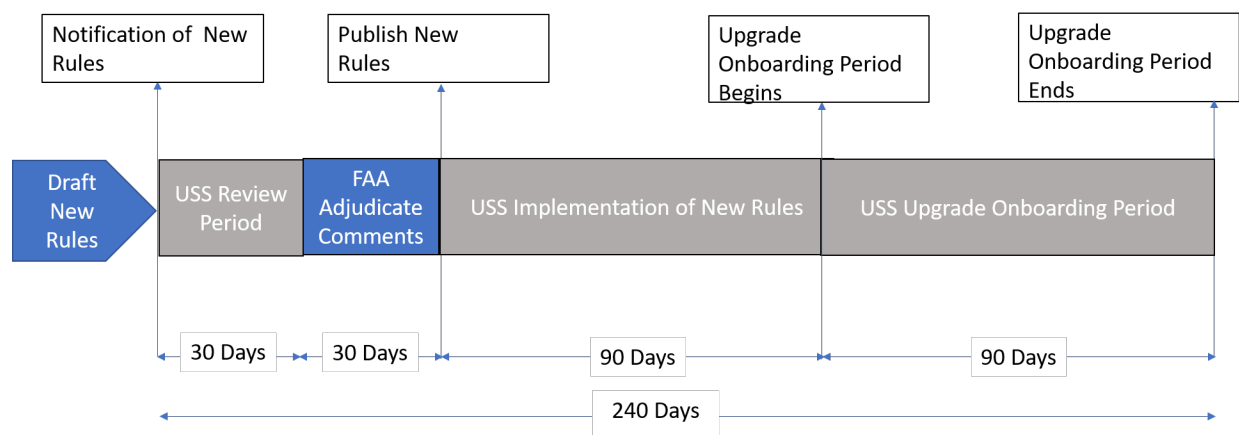


Figure 9: USS Upgrade Onboarding Timeline

If the FAA offers Off-Cycle Onboarding, it will announce a specified period when Off-Cycle Onboarding will occur. If Off-Cycle Onboarding is offered and a USS seeks to launch a new product outside the established annual Upgrade Onboarding Timelines, the USS can request Off-Cycle Onboarding. To participate in Off-Cycle Onboarding, the USS must submit a written request to the Contract Officer with details regarding the product it wishes to launch and when it wishes to launch. It is advised to provide sufficient detail for the FAA to understand the nature of the request. All requests for Off-Cycle Onboarding are subject to FAA review and approval. The review may include multiple factors such as the detail of the request, the type of product, and FAA resource availability. Additionally, USSs must not have been subject to non-compliance action within the previous twelve months. The USS must pass Off-Cycle Onboarding during the specified time period in order to put the product into development. All products and configurations tested in Off-Cycle Onboarding will be tested in all subsequent Upgrade Onboarding cycles.

Failure to successfully complete Upgrade Onboarding and demonstrate compliance to the USS Performance Rules will result in suspension of the USS to provide LAANC services. Figure 9

below provides a nominal timeline in the event a USS is unable to demonstrate compliance to the USS Performance Rules.

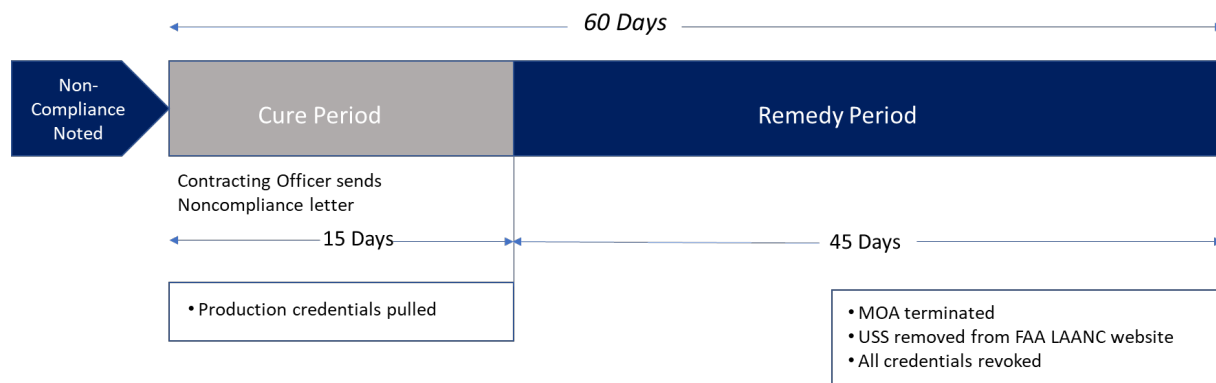


Figure 10: USS Upgrade Onboarding Non-Compliance Timeline

Attachment D – FAA Quality Control Process

The FAA has initiated a LAANC Quality Control (QC) and Quality of Service with UAS Service Suppliers, with a goal of a shared participation in and awareness of whether the end-to-end service being provided by the FAA-USS partnership is functioning in the manner in which it is intended. The FAA will perform Quality of Service and QC checks on a scheduled basis to enable identification of any product discrepancy since the last onboarding checkout that may affect compliance with the Performance Rules. A listing of core Rules is available upon request.

FAA Quality Control – Overview

Figure 10 below provides a high-level overview of the FAA Quality Control process. The intent of the process is to identify any product discrepancy since the last onboarding checkout that may affect compliance with the USS Performance Rules.

Manual Assessment Process

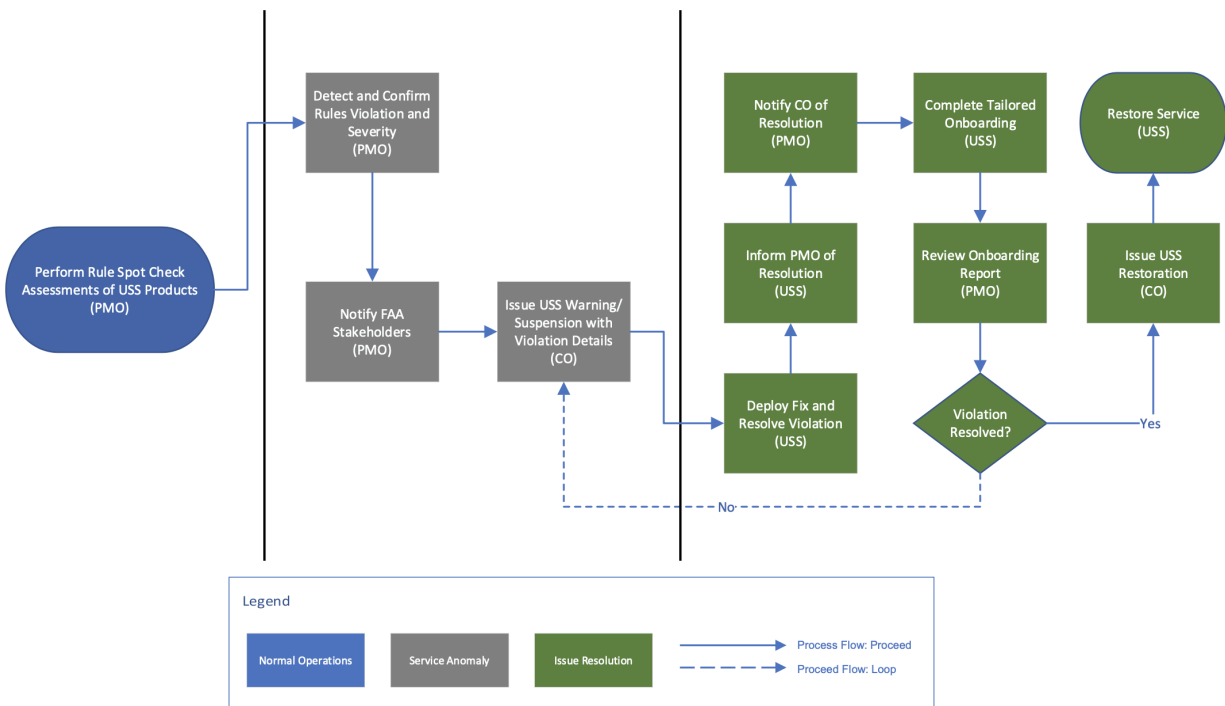


Figure 11: FAA Quality Control Process

Approach to Rules Violations

USSs must comply with the current USS Performance Rules and LAANC MOA. USSs are encouraged to proactively self-report detected violations to avoid potential FAA action. The FAA will act if a Rules violation is identified and confirmed. Table 7 below identifies guidelines the FAA has defined for severity and actions taken.

Table 7: USS Rules Violation Guidelines

Violation Severity	Rationale	Examples	FAA Action	USS Action
High	Potential Safety Impact	• Violation of core authorization rules	• Contact USS • Suspend service	• Correct • Re-onboard
Medium	Operational Non-Safety Impact	• Violation of non-core rules • Introduction of new product w/o onboarding • Output of misleading information to operators	• Issue warning to USS • Suspend service*	• Correct • Re-onboard*
Low	Minimal Impact	• Incorrect number of API calls • Incorrect spelling of authorization text • Service outage	• Contact USS • Report internally	• Correct*

***If necessary**

Attachment E – Data Protection Plan Description

The Data Protection Plan provides a detailed description as to how the USS implements the following required LAANC Data procedural protections for UAS operators, recognizing rights UAS operators have in their LAANC Data.

The DPP should at minimum include the following sections:

1. **Introduction:** Provide an overview of services, customers, and operating partnerships to obtain airspace authorizations from the LAANC program. The DPP and any accompanying documentation should have appropriate markings identifying proprietary or sensitive materials (e.g., Controlled Unclassified Information) not meant for distribution.
2. **System Description:** Provide and describe the secure data development practices and any external partnership applications or systems.
3. **Risk Management and Cybersecurity Framework:** Identify the selected NIST 800-53 or, NIST 800-171, or ISO/IEC 27001 cybersecurity frameworks as updated, and security controls implemented by the USS at the Moderate categorization rating identified within the FIPS 199 document. Address responses to core functions and categories such as Data Management, Access Controls, Encryption, Incident Response, Training and Awareness, Audits Reviews, Disaster Recovery, etc.
4. **Security Risk Assessment:** The USS must remediate vulnerabilities identified in the security risk assessment per Table 9 in Attachment H.
5. **Legal and Regulatory Compliance:** The DPP must also address regulatory compliance requirements, such as those mandated by Children’s Online Privacy Protection Act (COPPA) or other federal, state, and local data protection regulations.
6. **Data Protection and Privacy Policy:** The USS must include its data protection and privacy policy extended to its customers and what data is shared with the LAANC SDSP. This includes:
 - a. Identify to the UAS operator and to FAA, in plain language and in a conspicuous location:
 - all LAANC Data the USS is collecting from the UAS operator;
 - for how long the LAANC Data will be retained;
 - with whom the USS shares LAANC Data for UAS operators who opt-in to such LAANC Data sharing pursuant to paragraph 2 below;
 - all intended uses of the LAANC Data; and
 - any intellectual property rights the USS claims in the LAANC Data created by the UAS operator or derived from UAS - LAANC Data.
 - b. Provide a mechanism that informs the UAS operator of USS’s data usage and security policies related to the sharing of LAANC Data, and allow for the UAS operator to affirmatively agree to the sharing of LAANC Data through the UAS operator’s decision to use the services offered by the USS:

- The Data Protection Plan must provide that the USS may share LAANC Data with the FAA pursuant to law, federal regulation, the LAANC Memorandum of Agreement, or these Performance Rules. This includes, without limitation, the information described in the *USS-FAA LAANC API Specification* version in effect.
 - c. Allow UAS operators a method to access or request a copy of their LAANC Data collected by the USS, and to request its destruction. Upon receipt of the request from the operator, the USS must destroy the LAANC Data as requested.
7. Identify internal operating documents that implement procedures or policies in compliance with Articles 19, 20, and 21.

The Data Protection Plan will cover all LAANC Data as defined in Article 1, Parties & Definitions, of the LAANC Memorandum of Agreement.

Attachment F – Agreement for Third Party LAANC Integration

ARTICLE 1. PARTIES & DEFINITIONS

This is a Federal Aviation Administration (FAA) mandated Agreement, or sub-agreement, for private unmanned aircraft system (UAS) Service Suppliers (USSs), operating under the Low Altitude Authorization and Notification Capability (LAANC) program, to provide access to LAANC Data to the other party to this agreement.

1.1 Parties.

The FAA is intended to be a third-party beneficiary to this Agreement, and is providing notice to both parties under this agreement that it may exercise the rights and actions that are outlined in this agreement or were mandated for the USS to flow down to the other party of this Agreement.

The two Principal Parties are:

- (1) _____ the UAS, and
- (2) _____ is the external user, _____.

The parties do hereby agree and obligate themselves to abide by the rights, responsibilities, and other conditions as defined in this Agreement.

1.2 Definitions.

The parties to this Agreement, concur on the definitions for the following terms. The specific definitions are found in Attachment #1, the Memorandum of Agreement (MOA) between the FAA and USS provider.

- LAANC
- LAANC Data
- LAANC Automation Platform (AP)
- Representatives
- UAS Service Supplier (USS)

ARTICLE 2. SCOPE

2.1 Purpose.

[To be completed between Principal Parties]

2.2 Goals and Objectives to be accomplished.

The parties are bound by a duty of good faith and best effort in achieving the goals of this Agreement. The FAA agrees to fulfill the roles and responsibilities outlined in Attachment #1, provided the Principal Parties to this Agreement adhere to their roles and responsibilities.

[Remainder to be completed by Principal Parties]

2.3 Roles and Responsibilities.

2.3.1 All parties to this agreement

2.3.1.1 Agree to abide by the terms of the following:

- Attachment #1, the MOA between the FAA and the USS; and
- Attachment #2, the LAANC USS Performance Rules.
- 2.3.1.2 Agree to comply with Title VI of the Civil Rights Act of 1964 relating to nondiscrimination in federally assisted programs.

2.3.2 The USS

[To be completed between Principal Parties]

2.3.3 The External User

[To be completed between Principal Parties]

2.4 Points of Contact.

All parties to this Agreement agree to contact the below listed FAA Point of Contact (POC) for all LAANC matters.

[To be completed between Principal Parties]

ARTICLE 3. PERIOD OF AGREEMENT AND EFFECTIVE DATE

This Agreement will be effective on the date of the last signature below and will terminate five (5) years from the date of execution unless the parties affirmatively agree to continue it and modify the end date accordingly.

By signing this Agreement, certifies that it has a continuing need for this Agreement; if at any time no longer has a continuing need for this Agreement, must immediately notify the FAA.

ARTICLE 4. CHANGES AND MODIFICATIONS

Changes and modifications to this Agreement must be made by written amendment and signed by the FAA in addition to the Principal Parties.

ARTICLE 5. TERMINATION

In addition to the termination rights in Article 2, either party may terminate this Agreement with or without cause at any time prior to its expiration date by giving the other party at least thirty (30) calendar days prior written notice of termination. The FAA may also require that cease specific uses of the LAANC service; upon notice of such a requirement, may terminate this Agreement without advance written notice.

ARTICLE 6. ORDER OF PRECEDENCE

In the event of any inconsistency between the terms of this Agreement and its attachments, the inconsistency must be resolved by giving preference in the following order:

A. The Agreement

B. The Attachments

ARTICLE 7. INDEMNITY

Both Principal Parties agrees to indemnify and hold harmless the Government and its agents, officers, employees, and representatives (the Indemnified Parties) from and against all claims, demands, damages, liabilities, losses, suits, and judgments, including the costs and expenses incident thereto (collectively, Claims), that may accrue against, be suffered by, be charged to, or be recoverable from the Indemnified Parties arising out of acts or omissions of the Principal Parties or the Principal Parties' Representatives in connection with this Agreement—including but not limited to the Principal Parties' interactions with UAS operators—except to the extent the Principal Parties have fully complied with the material terms of this Agreement; including the LAANC USS Performance Rules; and the Indemnified Parties are the primary and proximate cause of the Claims for which the Indemnified Parties seek indemnification.

Even if the Principal Parties have fully complied with the material terms of this Agreement; including the LAANC USS Performance Rules; and the Indemnified Parties are the primary and proximate cause of the Claims for which the Indemnified Parties seek indemnification, the Principal Parties must indemnify and hold harmless the Indemnified Parties only to the extent that such Claims arise out of acts or omissions of the Principal Parties or the Principal Parties' Representatives. The FAA agrees to hold harmless the principal parties or the principal parties' Representatives for Claims only to the extent that such Claims arise out of acts or omissions of the Indemnified Parties.

The FAA will provide reasonably timely written notice to of all Claims and will cooperate with to facilitate the defense or settlement of all claims; however, the Principal Parties' obligations in this article are not contingent upon the FAA's doing so.

Attachment G – Applicable LAANC Performance Rules for LAANC SDSPs

Type 1

- [3.1c] The third-party must make the following statement available to users in a manner appropriate to its application designs: “[Third-party name] is a partner of [USS name], a provider of UAS services within the FAA’s Low-Altitude Authorization and Notification Capability (LAANC). [Third-party name] is NOT an authorized LAANC provider.”
- [3.1d] The USS must provide the operators with the hyperlink to the FAA Privacy Statement notifying them that the FAA has issued a Privacy Statement regarding information collected within LAANC. The Privacy Statement is located at: https://www.faa.gov/uas/programs_partnerships/data_exchange/privacy_statement.
- [3.2.1a] The third-party must conform to the USS-third party API Specification.
- [3.2.2] The third-party must obtain the below information from the USS.
 - [3.2.2a] UAS Facility Map (UASFM) Data
 - [3.2.2b] Full-Time National Security UAS Flight Restrictions (NSUFRs)
 - [3.2.2c] Part-Time NSUFRs
 - [3.2.2d] Class Airspace
 - [3.2.2e] Airports
 - [3.2.2f] Stadiums
 - [3.2.2g] Washington D.C. FRZ
 - [3.2.2h] U.S. Special Use Airspace
 - [3.2.2i] Airspace Schedule
- [3.4] The third-party must clearly advise the operator if a planned operation is eligible for automatic authorization or if a planned operation is eligible for Further Coordination.
- [3.4.4a] If used, the third-party must use aeronautical data that is not more than 24 hours old.
- [3.4.4b] If used, the third-party must obtain aeronautical data from the USS.
- [3.4.4c] If the USS is obtaining aeronautical data from a non-FAA intermediary, the third-party must display the following text to the operator, “This graphical representation [if displayed] / aeronautical data [if text] is for informational purposes only. The operator is responsible for referring to an FAA official source for NOTAM information relevant to this operation.”

- [3.4.4d] Unless all applicable NOTAMs (including TFRs and manually readable NOTAMs) and Prohibited/Restricted SUAs are completely processed by the USS from an FAA source as a service to operators and presented to them, third-parties must provide a hyperlink to FAA sources of information for these restrictions.
- [3.8c] In the event of protracted unavailability of the FAA's LAANC system lasting more than 4 hours, or at the direction of the FAA, the third-party must make the following statement available to users in a manner appropriate to its application design:
 - The FAA LAANC System is currently unavailable and unable to process new or modify airspace authorization requests. Previously approved airspace authorizations (those issued with an FAA reference number) remain valid unless you are informed otherwise by [USS] or the FAA. The FAA's DroneZone portal is an alternative source to make new airspace authorization requests. Processing times may vary and you must receive an authorization approval (issued with an FAA reference number) before you can fly. Visit <https://faadronezone.faa.gov/> for additional details. Updates about the current LAANC outage including return to service information may be available on the FAA's website or social media channels.
- [3.11a] All communication, display of UASFMS, or other displays of information provided to sUAS operators, remote pilots in commands, dispatchers, and others through the LAANC applications must be clear and consistent with all laws, regulations, policy, guidance, and mission of the FAA. All information provided in the LAANC application and other communications sUAS operators, remote pilots in commands, dispatchers, and others is subject to FAA review and USSs and/or third-parties must make changes to such communication and information display as directed by the FAA.

Type 2

- [3.1c] The third-party must make the following statement available to users in a manner appropriate to its application designs: “[Third-party name] is a partner of [USS name], a provider of UAS services within the FAA’s Low-Altitude Authorization and Notification Capability (LAANC). [Third-party name] is NOT an authorized LAANC provider.”
- [3.1d] The USS must provide the operators with the hyperlink to the FAA Privacy Statement notifying them that the FAA has issued a Privacy Statement regarding information collected within LAANC. The Privacy Statement is located at: https://www.faa.gov/uas/programs_partnerships/data_exchange/privacy_statement.
- [3.2.1a] The third-party must conform to the USS-third party API Specification.
- [3.2.2] The third-party must obtain the below information from the USS.
 - [3.2.2a] UAS Facility Map (UASFM) Data
 - [3.2.2b] Full-Time National Security UAS Flight Restrictions (NSUFRs)

- [3.2.2c] Part-Time NSUFRs
- [3.2.2d] Class Airspace
- [3.2.2e] Airports
- [3.2.2f] Stadiums
- [3.2.2g] Washington D.C. FRZ
- [3.2.2h] U.S. Special Use Airspace
- [3.2.2i] Airspace Schedule
- [3.4] The third-party must clearly advise the operator if a planned operation is eligible for automatic authorization or if a planned operation is eligible for Further Coordination.
- [3.4.1a] The auto-approved authorization process must not be considered complete until a confirming digital response is received from the FAA as described in the USS-FAA LAANC API Specification.
- [3.4.1b] The third-party must not make submissions more than 90 days in advance of the planned start of the operation.
- [3.4.2a] A Further Coordination request must not be considered approved or denied until a definitive response has been received from the FAA as described in the USS-FAA LAANC API Specification.
- [3.4.2b] Further Coordination requests must be submitted no later than 72 hours prior to the start time of the requested authorization.
- [3.4.2d] The third-party must not make submissions more than 90 days in advance.
- [3.4.2e] The third-party must inform operators that Further Coordination is a manual process with commensurate timelines.
- [3.4.2f] After submission, the third-party must inform the operator that the request is “pending” and discourage following up with Air Traffic by phone as this may result in the request being denied by FAA.
- [3.4.2g] If a Further Coordination request is denied, the third-party must advise the operator not to submit an operation with the same input parameters as the one that was denied.
- [3.4.3a] The third-party must apply the published airspace schedule for each operation. The airspace schedule defines the start time and end time for which the airspace volume is active (controlled). If no airspace volume is active, the airspace is Class G (uncontrolled) and thereby authorizations are not required. If no corresponding airspace schedule is found for a given airspace volume, that volume is assumed to be active at all times.

- [3.4.4a] If used, the third-party must use aeronautical data that is not more than 24 hours old.
- [3.4.4b] If used, the third-party must obtain aeronautical data from the USS.
- [3.4.4c] If the USS is obtaining aeronautical data from a non-FAA intermediary, the third-party must display the following text to the operator, “This graphical representation [if displayed] / aeronautical data [if text] is for informational purposes only. The operator is responsible for referring to an FAA official source for NOTAM information relevant to this operation.”
- [3.4.4d] Unless all applicable NOTAMs (including TFRs and manually readable NOTAMs) and Prohibited/Restricted SUAs are completely processed by the USS from an FAA source as a service to operators and presented to them, third-parties must provide a hyperlink to FAA sources of information for these restrictions.
- [3.4.4e] For operations which are not eligible for authorization, the third-party must provide a clear indication that it is not eligible for automatic authorization through LAANC.
 - [3.4.4f] Operations exceeding 400 feet (§107.51b)
 - [3.4.4g] Part 107 Operations at night (§107.29)
 - [3.4.4h] 44809 Operations at night
 - [3.4.4i] Operations in an NSUFR or the DC FRZ (§107.47)
 - [3.4.4j] Operations in a Prohibited or active Restricted SUA (§107.45)
 - [3.4.4k] Operations at civil twilight (§107.29)
 - [3.4.4l] Operations in a TFR (§107.47)
 - [3.4.4m] Operations in another type of SUA (MOA, CFA, Warning, Alert, etc.) (§107.49)
 - [3.4.4n] Operations within 3NM of a stadium (§107.47)
- [3.4.5a] The USS must inform operators of the Class E limitation when it applies to their planned operation.
- [3.4.6b] The third-party must make the reference code available to the operator.
- [3.4.7a] The third-party must offer the capability to modify the details of a planned operation if such change does not invalidate the authorization or require Air Traffic Further Coordination. For example, extending the duration of an automatically approved authorization is an acceptable modification.

- [3.4.8a] The third-party must incorporate the capability for any previously submitted requests or authorizations to be “cancelled” by the operator, indicating the operation is no longer planned. Since cancellation indicates that an operation will not be flown (in the future), it can occur only prior to the operation start time.
- [3.4.9a] Once a rescind message is received, the USS and/or third-party must initiate resolution with the operator upon receipt that the authorization is rescinded by informing the operator via a standard communication method (e.g., Email or SMS are currently acceptable methods) which must include the appropriate LAANC Reference Code.
- [3.4.9b] Third-parties must design their messaging and applications to prompt operators in the application to acknowledge authorizations that are rescinded by Air Traffic.
- [3.4.9c] Furthermore, the third-party must provide the operator with a means to acknowledge the rescinded authorization. The rescind acknowledgement should occur as soon as possible but may occur any time prior to the operation end time.
- [3.4.10b] For previous submissions that are no longer valid, the USS and/or third-party must initiate resolution with the operator upon detection that the authorization is invalid by informing the operator via a standard communication method (e.g., Email or SMS are currently acceptable methods) which must include the appropriate LAANC Reference Code.
- [3.4.10c] Third-parties must design their messaging and applications to prompt operators in the application to cancel authorizations that are no longer valid whenever they exist.
- [3.4.10d] Furthermore, the third-party must provide the operator with a means to cancel each invalid submission. The Invalid Cancel message will alert Air Traffic of the cancellation of each invalid submission.
- [3.5a] When Part 107 authorizations are provided, the third-party must generate, display, and store the following text (including the context-dependent information shown in brackets):
 - “[Start Date & Time – End Date & Time, Max Alt num ft]: In accordance with Title 14 CFR Part 107.41, your operation is authorized within the designated airspace and timeframe constraints. Altitude limits are absolute values above ground level which shall not be added to the height of any structures. This Authorization is subject to cancellation at any time upon notice by the FAA Administrator or his/her authorized representative. This Authorization does not constitute a waiver of any State law or local ordinance. Remote pilots are responsible to check the airspace they are operating in and comply with all restrictions that may be present in accordance with 14 CFR 107.45 and 107.49 (a)(2), such as restricted and Prohibited Airspace, Temporary Flight Restrictions, etc. Remote pilots are also responsible for complying with the operating requirements in 14 CFR 107.29(a) when operating at night. Operations are not

authorized in Class E airspace when there is a weather ceiling less than 1,000 feet AGL. If the UAS loses communications or loses its GPS signal, it must return to a predetermined location within the operating area and land. The remote pilot in command must abort the flight in the event of unpredicted obstacles or emergencies.”

- [3.5b] “Start Date & Time” and “End Date & Time” must unambiguously include the year, month, day, hour, minute, and time zone (or UTC).
- [3.5c] The third-party must provide a method for quick access to the operation-specific authorization information (including text above) in a form that could be produced by the operator to authorities if necessary.
- [3.6a] When limited recreational authorizations in accordance with 49 U.S.C. § 44809 are provided, the USS must generate, display, and store the following text (including the context-dependent information shown in brackets):
 - “[Start Date & Time – End Date & Time, Max Alt num ft]: In accordance with 49 U.S.C. § 44809(a)(5), your operation is authorized within the designated airspace and timeframe constraints. Altitude limits are absolute values above ground level which shall not be added to the height of any structures. This Authorization is subject to cancellation at any time upon notice by the FAA Administrator or his/her authorized representative. This Authorization does not constitute a waiver of any State law or local ordinance. The operator is responsible to check the airspace in which the UAS will be operated and comply with all restrictions that may be present in accordance with § 44809(a)(5), such as restricted and prohibited airspace, temporary flight restrictions, etc. This authorization is subject to the following conditions: (1) operations are not authorized in Class E surface area airspace when there is a weather ceiling less than 1,000 feet AGL; (2) if the UAS loses communications or loses its GPS signal, it must return to a predetermined location within the operating area and land; and (3) the person manipulating the controls of the UAS must abort the flight in the event of unpredicted obstacles or emergencies.”
- [3.6b] “Start Date & Time” and “End Date & Time” must unambiguously include the year, month, day, hour, minute, and time zone (or UTC).
- [3.6c] The third-party must provide a method for quick access to the operation-specific authorization information (including text above) in a form that could be produced by the operator to authorities if necessary.
- [3.7a] When the USS blocks a LAANC submission during pre-check validation, the third-party must display all errors and related data that the USS returns to the user.
- [3.7e] If a new submission is made when there is one (or more) non-pending operations for the same operator (name and phone number) occurring with an overlapping time

period, the third-party must display a message to user that there are one or more operations for this operator and time period and unused operations should be cancelled before the operation start time (3.7e)

- [3.8b] In the event of protracted unavailability of the FAA's LAANC system lasting more than 4 hours, or at the direction of the FAA, the third-party must make the following statement available to users in a manner appropriate to its application design:
 - The FAA LAANC System is currently unavailable and unable to process new or modify airspace authorization requests. Previously approved airspace authorizations (those issued with an FAA reference number) remain valid unless you are informed otherwise by [USS] or the FAA. The FAA's DroneZone portal is an alternative source to make new airspace authorization requests. Processing times may vary and you must receive an authorization approval (issued with an FAA reference number) before you can fly. Visit <https://faadronezone.faa.gov/> for additional details. Updates about the current LAANC outage including return to service information may be available on the FAA's website or social media channels.
- [3.9.5c] The USS must provide FAA user accounts to the FAA for the following purposes:
 1. **Production Environment:** Monitoring of service functionality on a periodic basis for quality control.
 2. **Non-Production Environment:** Conduct onboarding testing as applicable.
- [3.10a] In accordance with Article 22, Data Procedural Protections, of the LAANC Memorandum of Agreement, the third-party must develop and implement a Data Protection Plan that is available to the FAA upon request.
- [3.10b] The third-party must provide users a means to request destruction of LAANC data. The deletion request must be processed by the USS per rule 3.10b.
- [3.11a] All communication, display of UASFMS, or other displays of information provided to sUAS operators, remote pilots in commands, dispatchers, and others through the LAANC applications must be clear and consistent with all laws, regulations, policy, guidance, and mission of the FAA. All information provided in the LAANC application and other communications sUAS operators, remote pilots in commands, dispatchers, and others is subject to FAA review and USSs and/or third-parties must make changes to such communication and information display as directed by the FAA.

Attachment H – Article 19 Details and Definitions

The Data Protection Plan (DPP): Sets forth the minimum cybersecurity requirements for the handling and storage of sensitive information, including but not limited to personally identifiable information (PII), and LAANC information. The following sections include terms identified in Article 19 and the DPP:

Cloud based Services and Agreements

Service Level Agreement (SLA): A comprehensive description of the service levels and performance metrics that the CSP guarantees to its customers. This section should include details on uptime, response time, and availability of the service.

Service Description: A detailed description of the cloud services being offered, including the type of service (IaaS, PaaS, SaaS). The USS or LAANC SDSP must identify cloud security responsibility based on service type.

The SLA should contain information related to the following:

- **Service Description:** A detailed description of the cloud services offered, including the type of service (IaaS, PaaS, SaaS). The customer is responsible for security in the cloud. The CSP is responsible for the security “of” the cloud.
- **Compliance and Governance:** A description of the compliance and governance requirements that the CSP adheres to, such as regulatory compliance, data protection, and data sovereignty laws. CSPs must comply with applicable laws and regulations.
- **Data Security:** Provide a detailed description of the security measures and protocols implemented by the CSP to ensure customer data's confidentiality, integrity, and availability based on the type of service.

Responsibility			
Service Model	Agency (By Service Model)	CSP (By Service Model)	Shared (By Service Model)
IaaS	• Data governance and right management • Client end points • Account and access management • Identity and directory infrastructure applications • Network security controls • OS systems and patch versions	• Hosting infrastructure • Network infrastructure • Physical data center	• N/A
PaaS	• Data governance and right management • Client end points • Account and access management	• Hosting infrastructure • Network infrastructure • Physical data center • OS systems and patch versions	• Identity and directory infrastructure • Applications • Network security controls

SaaS	• Data governance and right management • Client end points • Account and access management	• Applications • Network security controls • OS systems and patch versions • Hosting infrastructure • Network infrastructure • Physical data center	• Identity and directory infrastructure
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Table 8: Service Model Responsibility

The USSs Cybersecurity Measures and Protocols: Example Controls

Each USS selects the security framework from the list identified in Article 19 of the LAANC MOA document. This section provides an example of the security control families related to mitigating potential security vulnerabilities. The following serves as an example only.

Example Framework: NIST 800-53 Rev. 5

The core security control families in NIST 800-53 Rev 5 include critical controls ensuring an effective cybersecurity program.

1. Access Control (AC): This family of controls is critical to ensure that access to sensitive information and resources is restricted to authorized users only.
2. Identification and Authentication (IA): This family of controls includes measures to verify the identity of users and devices, and to authenticate their access to systems and data.
3. Risk Assessment (RA): This family of controls is essential for identifying and evaluating cybersecurity risks and vulnerabilities, and for implementing appropriate risk management strategies.
4. Security Assessment and Authorization (CA): This family of controls includes measures to test and evaluate the security of information systems and authorize their operation based on an assessment of the risks and vulnerabilities.
5. Configuration Management (CM): This family of controls is critical to ensure that information systems and devices are configured securely and consistently.
6. Incident Response (IR): This family of controls includes measures to detect, analyze, and respond to cybersecurity incidents and to minimize the impact of such incidents.
7. System and Information Integrity (SI): This family of controls includes measures to protect against unauthorized access, modification, or destruction of systems and data.
8. Audit and Accountability (AU): This family of controls includes measures to generate, store, and review audit logs to ensure that cybersecurity events and incidents are properly recorded and can be investigated if necessary.
9. Security testing and vulnerability scanning: The USS's must outline the process for security testing and vulnerability scanning of applications, including the frequency of testing using automated tools to identify vulnerabilities in the organization's systems and

applications.

Table 9: Vulnerability Severity Rating

Vulnerability Severity Rating				
System Impact (FIPS 199)	Critical	High	Medium	Low
High	Within 15 days	Within 30 days	Within 60 days	Within 120 days
Moderate	Within 15 days	Within 30 days	Within 60 days	Within 120 days
Low	Within 15 days	Within 30 days	Within 60 days	Within 120 days

System Maintenance:

The purpose of this section is to ensure that the computer system, network, or software applications are functioning optimally, reliably and to reduce the risk of security breaches. It also helps to identify and address potential problems before they become major issues, ultimately improving the system's overall reliability and availability.

Vulnerability scanning: These tools can identify common vulnerabilities such as outdated software, misconfigured systems, and unpatched software.

Vulnerability prioritization: Once vulnerabilities have been identified, they must be prioritized based on their severity and the potential impact they could have on the organization. Vulnerabilities that are more critical or easier to exploit should be given higher priority.

Remediation planning: After prioritizing vulnerabilities, a plan must be developed for remediation. This may involve patching software, reconfiguring systems, or implementing additional security controls.

Remediation execution: Once a plan has been developed, the remediation process can begin. This typically involves applying software patches, updating configurations, or deploying new security controls.

Verification: It is important to verify that the remediation process has been successful. This may involve re-scanning assets to confirm that vulnerabilities have been remediated or conducting manual testing to ensure that the vulnerabilities have been properly addressed.

Patch management: Outline the requirements of your patch management plan, including the frequency of patch updates, the types of patches that will be applied, and the process for testing and deploying patches.

Incident Response Plan: The USS shall develop and maintain an incident response plan to respond to cybersecurity incidents in a timely and effective manner.

Training: The USS shall provide regular training to employees, contractors, and vendors on cybersecurity best practices and training protocols.

Audit and Accountability: The USS shall implement auditing and monitoring tools to detect and respond to cybersecurity incidents.

Email and web browser security: This section outlines the security measures that must be implemented to protect email and web browsers from potential security threats, such as phishing attacks, malware, and other types of cyber-attacks. This may include implementing secure email protocols such as SMTPS, POP3S, and IMAPS, as well as using secure web browsers with built-in security features such as sandboxing and privacy protection.

Antivirus and Malware Protection:

This section outlines the requirements for antivirus software, including the frequency of updates, scanning schedules, and the types of malware that the software should be able to detect and remove.

Antivirus software: Antivirus and malware software should comply with industry standards such as the Common Criteria or ISO 15408, which provide assurance of the software's security and effectiveness.

Regular updates: Antivirus and malware software must be updated regularly to ensure that it can detect and remove the latest threats. This includes updating the software itself as well as the virus definition files.

Real-time protection: Antivirus and malware software should provide real-time protection against malware threats. This means that the software should be able to detect and block malware in real-time before it can infect the system.

Scanning schedules: Antivirus and malware software should be configured to scan systems on a regular basis, such as daily or weekly. This helps ensure that any malware on the system is detected and removed.

Quarantine: Antivirus and malware software should be able to quarantine infected files, rather than simply deleting them. This allows for further analysis of the file to determine the nature of the threat and can help prevent further infection.

Reporting and logging: Antivirus and malware software should generate reports and logs of detected threats, including the date and time of the detection, the type of threat, and the action taken.

Integration with other security controls: Antivirus and malware software should be integrated with other security controls, such as firewalls and intrusion detection/prevention systems, to provide a comprehensive defense against malware.

Attachment I – B4UFLY Applicable LAANC USS Performance Rules

- [3.3.1a] The USS must apply the appropriate UASFM(s) to each operation. Basemap data includes the definition of UASFM grid cells. UASFM values (such as altitude limits and flags) may change on a daily timeframe, especially to expedite map corrections or time-sensitive adjustments.
- [3.3.2] UASFM grid cell boundaries are rectangular and airspace boundaries are generally curved. If a UASFM extends beyond a controlled airspace boundary, the airspace boundary has precedence. For example, in the area outside a controlled airspace boundary but covered by a UASFM grid, the UASFM threshold does not apply.

In graphically presenting limits to operators, USSs are encouraged to round off or clip UASFM to match airspace boundaries where this accurately represents the precedence described above. USSs may also aggregate adjacent grids having the same altitude threshold and/or annotate grids (for example, with authorizing facility association) as deemed effective in their graphical interface designs.

- [3.4.4a] If used, the USS must use aeronautical data that is not more than 24 hours old.
- [3.4.4c] Additionally, if a non-FAA intermediary is used, the USS must prominently display the following text to the operator, “This graphical representation [if displayed] / aeronautical data [if text] is for informational purposes only. The operator is responsible for referring to an FAA official source for NOTAM information relevant to this operation.”

NOTAMs, including TFRs, convey many relevant sUAS restrictions. SUAs may also apply to sUAS. “Prohibited” and “Restricted” are important SUA types that generally do apply to sUAS. (Note that Restricted SUAs also have associated schedules documenting when they are active or “hot” – these schedules are published on [sua.faa.gov](https://www.faa.gov/sua) and are partially included in the SUA ArcGIS dataset.) The FAA wants to ensure that operators using LAANC are aware of these potential restrictions. These performance rules offer several ways for USSs to address these concerns.

- [3.4.4h] 44809 Operations at night. USSs must alert operators that at night, “sUAS should be lighted with anticollision lighting visible for at least 3 statute miles that has a flash rate sufficient to avoid a collision. [Provide a link to the most recent revision of Advisory Circular 91-57.]” USSs must employ a reasonable algorithm for periods of nighttime excluding civil twilight.
- [3.4.5] The USS must inform operators of the Class E limitation when it applies to their planned operation. The authorization caveat is necessary to alert the operator of the spacing rules in Class E airspace which allows for low flying aircraft when a low weather ceiling exists. The USS should also assist in informing the operator about relevant, reliable weather information to include; current and forecast sky condition that describes cloud cover, vertical visibility, or clear skies and the height of the layer indicated in feet Above Ground Level (AGL). Providing a link to an aviation weather source that includes Meteorological Aerodrome Report (METAR) and Terminal Aerodrome Forecasts (TAF) reports is strongly recommended. The USS may also refer to the Aviation Weather

Services Advisory Circular for detailed information about sky condition reporting criteria (AC 00-45, Section 3.1.5.9).

Attachment J – B4UFLY Safety Guidelines and Resources

Safety Guidelines for 44809 Users

- Fly only for fun or recreation. Otherwise, get [Part 107 licensed](#).
- Follow the safety guidelines of a recognized model aircraft community-based organization.
- Avoid flying in a way that interferes with other aircraft.
- Avoid flying near or over people, public events, or stadiums full of people. Flying near people can create a hazard.
- Avoid flying near or over emergency response efforts.
- Make sure you can see your UAS at all times with unaided vision (except for glasses and contacts).
- Fly at or below 400 feet AGL when in uncontrolled airspace (Class G).
- You must obtain authorization to fly in Class B, C, D, or within the lateral boundaries of the surface area of Class E airspace.
- Avoid flying weather conditions such as high winds or reduced visibility.
- You must register your drone if the drone is over 0.55lbs. If your drone is registered, you must either be Remote ID equipped or only fly inside a FAA Recognized Identification Area (FRIA).
- You must take The Recreational UAS Safety Test – TRUST and provide proof of test passage to the FAA or law enforcement upon request.
- See AC 91-57C for more detailed information.

Resources

- FAQs: <https://www.faa.gov/uas/resources/faqs>
- Other resources: <https://www.faa.gov/uas>

Attachment K – Definitions

Table 10: Definitions

State	Definition
Authorized	Approved authorization that has not been Completed or De-Authorized.
Complete	Approved authorization that has finished at its submitted end time, or by an operator action indicating the authorization is closed. Note: Includes authorizations detected as invalid that have not been invalid cancelled by the operator, but have reached its submitted end time.
De-Authorized	Authorization was cancelled (i.e., operator, invalid), or rescinded. Notes: (1) Operator cancel and invalid cancel can only occur prior to the submitted start time. (2) Rescind acknowledgement can occur any time after the authorization is rescinded, but prior to the submitted end time. (3) Includes rescinded authorizations not acknowledged by the submitted end time.
Never Authorized	Pending authorization request that was denied, expired, or cancelled (i.e., automatic, invalid, or operator).
Pending	Active authorization request that has not yet been approved or denied.
Rescinded Awaiting	Authorization rescinded and awaiting operator acknowledgement.