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(AFRL)

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This instruction implements Department of Defense Directive (DODI) 5030.61, *DoD Airworthiness Policy,* Air Force Policy Directive (AFPD) 62-6, *USAF Airworthiness,* Air Force Instruction (AFI) 62-601, *USAF Airworthiness,* and Air Force Materiel Command Supplement (AFMCSUP) to AFI 62-601, *USAF Airworthiness*. It establishes policy and procedures for assessing the airworthiness of flight test aircraft owned and/or operated by or for AFRL for science and technology (S&T) purposes. It describes processes to be used for the issuance of an airworthiness flight authorization for these aircraft consistent with overall USAF airworthiness policy and as delegated to AFRL by the USAF Technical Airworthiness Authority (AF TAA). This instruction applies to all AFRL personnel involved with the planning, management, and execution of flight test activities. This publication may be supplemented at any level, but all direct supplements must be routed to the Office of Primary Responsibility (OPR) of this publication for coordination prior to certification and approval. Refer recommended changes and questions about this publication to the OPR using AF Form 847, Recommendation for Change of Publication. Route AF Forms 847 from the field through the appropriate functional chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records,* and disposed of IAW Air Force Information Management System (AFRIMS) Records Disposition Schedule (RDS).

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1. Purpose and Scope

1.1. Purpose. The purpose of this instruction is to establish roles and responsibilities, standardize policy, and define basic processes for the conduct of airworthiness assessments and issuance of airworthiness flight authorizations for AFRL programs. In this instruction, the term "flight test" is defined to mean any and all flight operations conducted by or for AFRL. This instruction defines and implements an AFRL airworthiness assessment process, which identifies and characterizes airworthiness technical risks associated with the conduct of flight test. While this instruction defines basic policy, processes, and procedures common to issuing airworthiness flight authorizations for all AFRL flight test activities, each flight test program managed by a Technology Directorate (TD) may have unique aspects which could impact the airworthiness process. Therefore, each program will be assessed on a case-by-case basis, and the process details may vary in minor respects for individual programs.

1.2. Scope. This instruction applies to all non-munition AFRL activities with the intent to safely obtain, sustain, and complete flight. This includes flight experiments and demonstrations that involve AFRL-owned (full or part ownership) and/or operated assets, and all flight tests executed by organizations under contract to AFRL. This instruction defines the AFRL airworthiness processes to be used by programs to conduct their airworthiness assessments and by the AFRL Delegated Technical Authority (DTA) to conduct independent airworthiness assessments and issue airworthiness flight authorizations consistent with the authorities delegated by the AF TAA.

1.3. Source of Authority. The AF TAA is the single USAF official authorized under AFPD 62-6 to conduct independent airworthiness assessments and issue airworthiness certifications and airworthiness flight authorizations for all aircraft and air systems owned, leased, operated, used, designed or modified by DoD in accordance with DoDI 5030.61, *DoD Airworthiness Policy*, 24 May 1013. The AF TAA is authorized to delegate in writing, at his or her discretion, selected airworthiness authorities to qualified individuals. Accordingly, the AF TAA has delegated selected airworthiness authorities to an individual in AFRL/EN (AFRL DTA) to perform independent airworthiness assessments, assess sources of technical risk associated with airworthiness, and issue airworthiness flight authorizations for the conduct of AFRL S&T flight activities.

2. Roles and Responsibilities

2.1. AFRL Commander (AFRL/CC) will:

2.1.1. Make available a suitably-qualified individual from AFRL/EN to serve as the AFRL DTA as designated by the AF TAA.

2.2. AFRL Flight Operations Authority (FOA) will:

2.2.1. Ensure airworthiness flight authorizations are completed in support of flight test.

2.3. AFRL Center Test Authority (CTA) will:

2.3.1. Convene and conduct the Flight Test Planning Meeting (FTPM). The record will include feedback to the FTPM's participants regarding any actions needed to support the planned flight test.

2.3.2. Assist AFRL Directorate of Engineering and Technical Management (AFRL/EN) and the AFRL DTA on the integration of independent airworthiness assessments into the flight test and evaluation process.

2.3.3. Provide the independently assessed AW risk to the AFRL Test Approval Authority (AFRL TAA) (as defined in AFRLI 61-103, *AFRL Research Test Management*) identified on AFRL Form 19A, *AFRL Safety Review Board*/19C, *Test Plan Amendment Summary* for acceptance.

2.3.4. Coordinate Government Flight Representative (GFR) related activities to support the continued airworthiness requirements, as required.

2.4. AFRL/EN will:

2.4.1. Provide feedback to the FTPM's participants regarding any actions needed to support airworthiness approvals for the planned flight test activities.

2.4.2. Provide corporate-level guidance, direction, organizational interface, and process improvement for the AFRL airworthiness flight authorization process.

2.4.3. Assist/advise Program Managers (PM), and S&Es in the development of appropriate contract language and review of airworthiness program documentation.

2.4.4. Participate in technical review boards (TRB) and safety review boards (SRB) as necessary to ensure an independent airworthiness risk assessment is provided to the SRB.

2.4.5. Plan, implement, and update an airworthiness training program for the AFRL S&T workforce. This should include airworthiness training that reflects the AFRL S&T non-design based airworthiness process.

2.5. AFRL DTA will:

2.5.1. Provide overall supervision and management required to organize, direct, and control the airworthiness flight release process IAW this AFRLI, DoD, USAF, and AFMC policy, directives, and requirements.

2.5.2. Exercise delegated airworthiness authorities granted by the AF TAA in accordance with AFPD 62-6, AFI 62-601, and applicable Airworthiness Bulletins (AWB).

2.5.3. Sub-delegate airworthiness authorities to appropriately trained AFRL personnel as required by issuance of a Letter of Delegation.

2.5.4. Conduct independent airworthiness assessments of flight test systems and make airworthiness determinations through reviews of available data and documentation.

2.5.5. Identify the airworthiness assessed risk for inclusion on the AFRL Form 19A/19C prior to the AFRL TAA acceptance of risk.

2.5.6. Issue an airworthiness flight authorization in the form of a Civil Aircraft Operations (CAO) Declaration Letter, a Public Aircraft Operations (PAO) Declaration Letter/Military Flight Release (MFR), or an MFR, after the AFRL TAA approves of the final test plan and accepts the residual risks (reference, United States Air Force Airworthiness Bulletin, AWB 1012 for CAO/PAO Letter examples).

2.5.7. Make a determination of modifications to AFRL flight test air systems as "reportable" or "non-reportable" using the criteria and processes defined in Attachment 3 to AFI 62-601 and AWB-007A and as tailored for S&T environment. The AFRL DTA may delegate this to the TD Chief Engineer (CE) on a case-by-case basis.

2.5.8. Make determinations that flight test activities can be conducted as CAO or PAO. If a contractor owned contractor operated (COCO) operation is determined to be PAO, then the AFRL DTA will provide this determination and the airworthiness flight authorization to the AFRL contracting officer for transmittal to the aircraft operating contractor.

2.5.9. Ensure airworthiness flight authorizations or other government agency equivalent flight release documents, as appropriate, are issued by the appropriate authority for all flight test aircraft.

2.5.10. Re-evaluate (as necessary) a previously-issued airworthiness flight authorization when a flight test air system has undergone configuration changes during the flight test program which may have had an impact on air vehicle airworthiness.

2.6. AFRL Chief of Safety (AFRL/SE) will:

2.6.1. In addition to standard mishap reporting procedures, notify the AFRL DTA or the AF TAA of any aircraft mishap that occurs during an AFRL flight test activity within 24 hours for affected aircraft where an MFR was issued.

2.7. AFRL TD Directors and the 711 Human Performance Wing (HPW)/CC will:

2.7.1. Ensure all PMs managing flight test activities contact the TD CE as early as practical to ensure airworthiness requirements are incorporated into impending contract language, appropriate processes are defined, documentation is identified, and procedures are followed to accomplish the program airworthiness determination and obtain an airworthiness flight authorization before flight testing begins.

2.7.2. Provide adequate resources to support the airworthiness determination and flight authorization processes.

2.8. AFRL TD/Wing CE will:

2.8.1. Support AFRL TD Directors in implementing the AFRL airworthiness flight release process by ensuring that AFRL programs, PMs, and S&Es comply with the requirements of this instruction during the planning and execution of flight test programs.

2.8.2. Support the AFRL DTA in executing Independent Review Team (IRT) airworthiness assessments, as required.

2.8.3. Ensure all flight test aircraft and/or air systems have completed an airworthiness determination by the appropriate issuing authority, and the aircraft is safe to fly and airworthy throughout the flight test program.

2.8.4. Once assigned airworthiness assertion authority by the AFRL DTA, conduct a risk assessment for modifications to existing air vehicles, then make, and document a reportability recommendation to the AFRL DTA per AWB-007A.

2.8.5. Once delegated authority by the AFRL DTA, provide an Assertion of Airworthiness (Attachment 3) for Group 1 and Group 2 Unmanned Aerial System (UAS) flying under an AFRL Bounded MFR and maintain a configuration control process for those UAS.

2.9. AFRL Test Approval Authority (AFRL TAA) will:

2.9.1. Review and accept the airworthiness technical risk, identified on AFRL Form 19A or Form 19C.

2.10. PMs and S&Es will:

2.10.1. If a flight activity is required, ensure data, documents and deliverables (Contract Deliverables Requirements List (CDRL)) essential to assessing compliance to airworthiness requirements are incorporated in contracts or agreements (i.e., Sections L, M, and the Performance Work Statement (PWS) for products or services involved in AFRL S&T flight test programs. These data, documents and CDRL requirements must be sufficient to support airworthiness determinations and flight test activities as required by USAF policy and as defined by the AFRL DTA. (See Attachment 2 of AWB-002A, dated 17 May 2011 for sample contracting language).

2.10.2. Ensure appropriate program airworthiness processes are defined, documentation is identified, and procedures are followed to accomplish program airworthiness determination necessary to obtain an airworthiness flight authorization. Reference Section 4.4, 4.6, and Attachment 2.

2.10.3. Conduct an airworthiness assessment (including estimated risks) of the proposed flight test air system and provide this assessment to the AFRL DTA and for discussion at the TRB.

2.10.4. Obtain airworthiness flight authorizations from the AFRL DTA, AF TAA, another Armed Services Department, or NASA (as applicable, depending on the ownership of the air system and/or contractual relationships) to support approval of flight operations.

2.10.5. Ensure flight tests are conducted in accordance with the conditions and/or limitations listed in the airworthiness flight authorization for the flight test air system.

2.10.6. Ensure methods are defined and executed to control the configuration of the test article and maintenance actions, to maintain the test air system in a safe and airworthy condition IAW AFRL configuration control processes as defined in AFRLMAN 99-103, paragraphs 4.2 and 4.3.

2.10.7. Notify the AFRL DTA of any configuration changes to the test article(s) so that a reportable/non-reportable determination can be made and a new MFR issued as required.

2.11. AFRL Contracting Officers will:

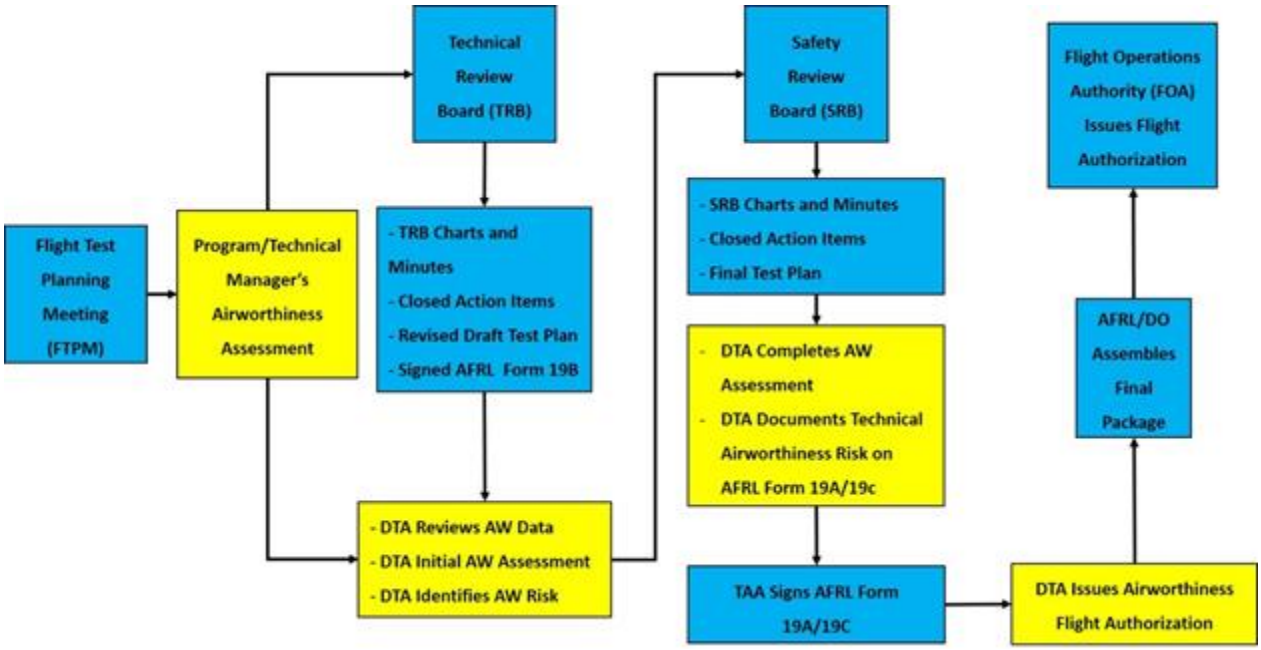
2.11.1. Upon receipt of the AF TAA or AFRL DTA-issued MFR, provide the aircraft operating contractor with a "*Declaration of Public Aircraft Operations*" letter and a copy of the MFR when a PAO declaration is made. A template of this letter can be found in USAF AWB–1012, dated 19 August 2015.

3. Airworthiness Flight Authorization Process Overview

3.1. AFRL/EN is the airworthiness process owner and the AFRL DTA is responsible for conducting independent airworthiness assessments and issuance of an airworthiness flight authorization. Figure 1 shows the overall AFRL airworthiness flight authorization process flow, which is a process with parallelisms and interdependencies. This instruction addresses the airworthiness portion of the process, but other parts of the overall flight authorization process, such as the TRB and SRB are identified to indicate the interactions and synergy between these activities and airworthiness-related activities (Refer to AFRLI 61-103, for more details on the conduct of the TRB and SRB).

3.2. The new elements of the process are identified in the yellow boxes and implement AFI 62- 601, within AFRL. The items in blue are currently existing and documented in AFRLI 61-103. The process starting point is a FTPM which is scheduled when a new TD program incorporating flight test activities is initiated or added to an existing program effort. For existing programs, if significant changes to the test plan or configuration changes to the test vehicle have occurred since issuance of the original flight authorization, a new airworthiness assessment and airworthiness flight authorization shall be accomplished.

Figure 1. AFRL Airworthiness Authorization Process.



4. Airworthiness Flight Authorization

4.1. Airworthiness Assessment Overview. An airworthiness assessment and issuance of an airworthiness flight authorization involves multiple decision points and scenarios. Given the scope of AFRL S&T programs, there exists great diversity in the type of air systems which may be employed to execute flight test activities, and a large number of possible test approaches. An airworthiness assessment can be either design- or non-design-based.

4.1.1. A design-based assessment will be conducted when sufficient air system design, test detail and airworthiness criteria compliance information is available to enable this

type of assessment. Criteria listed in the current version of Military Handbook (MIL-HDBK)-516, *Airworthiness Certification Criteria*, will be used as the basis for any design-based airworthiness assessment.

4.1.2. A non-design based airworthiness assessment will be performed when adequate information to support a full design-based assessment is either impossible or impractical to obtain. A non-design-based airworthiness assessment is typically accomplished for small Unmanned Aerial Systems (sUAS). This type of assessment will be based mainly on an evaluation of the risks associated with flight test operation of the air system. In conducting the non-design based assessment, any design or criteria compliance information which is available should be provided to the AFRL DTA.

4.1.3. In cases where the proposed effort is not within the AFRL DTA's delegated authority, the DTA will refer the PM to the appropriate organization/authority and the process to obtain an airworthiness flight authorization may differ from that depicted in Figure 1.

4.2. Airworthiness Planning. Airworthiness planning shall be accomplished as early in the program development cycle. This planning shall define the overall program approach to achieving and maintaining air system airworthiness and create the framework within which detailed airworthiness criteria are identified and verification is accomplished.

4.2.1. For contractor executed efforts, the approach by which airworthiness activities will be accomplished should be incorporated into program contractual documents (e.g., Sections L and M, IMP, PWS/work statements, CDRLs, and specifications). Early and frequent engagement with the DTA is highly encouraged during airworthiness planning.

4.3. Flight Test Planning Meeting (FTPM).

4.3.1. All AFRL programs that are planning any flight activities should schedule an FTPM as soon as practical in the program planning phase by contacting AFRL/DO. This includes the initialization of indoor or enclosed facilities. The main purpose of the FTPM is to educate process stakeholders and decision makers in the specifics of the proposed flight test program, and to provide feedback, guidance, and direction to the project program manager regarding the specific information and actions required to successfully obtain the flight authorization. The project PM should schedule an FTPM in order to ensure timely guidance from AFRL/EN, AFRL/DO and AFRL/SE, to enable the development of the data necessary to complete the overall flight authorization process and to avoid unnecessary delays in obtaining required approvals. If the project is developing, initiating, or changing the scope of an existing indoor or enclosed facility, this should be identified in the FTPM, so a Facility MFR can be issued.

4.3.2. The information presented by the program at the FTPM should be as detailed and complete as possible acknowledging this event occurs early in the program planning process and specifics might not be available. It is recognized that the planned flight test effort will evolve and mature as the program moves forward and that pertinent details will be further defined as this process proceeds; however, it is extremely important the PM present as much available information as possible at the FTPM and engage in early discussion with approving authorities so guidance and feedback can be obtained before all aspects of the program are "locked down" and finalized. For example, if the effort will

involve contracted support or COCO activity, it may be essential to include certain items/data requirements in the contract work statement to facilitate the flight authorization process.

4.3.3. In cases where the proposed effort is not within the AFRL DTA's delegated authority, the DTA will refer the airworthiness assessment to the appropriate organization and authority.

4.3.4. The FTPM should include representatives from the program office, AFRL/EN, AFRL/DO, and AFRL/SE.

4.4. Program Manager's/Technical Manager's Airworthiness Assessment. The PM for each flight program shall conduct an airworthiness assessment of the flight test air system (see Section 4.6 and Attachment 2 for additional details).

4.4.1. This assessment can be design-based or non-design-based, but should cover the following:

4.4.1.1. The rationale used by the PM to conclude that the air system has the ability to attain, sustain, and complete flight in a safe manner.

4.4.1.2. An evaluation of the air system design, production processes (including methods to assure compliance to approved engineering documentation), and flight/maintenance manuals and documentation as they pertain to the ability of the system to attain, sustain, and complete flight in a safe manner.

4.4.1.3. An assessment of the impacts of any changes to an air system established baseline.

4.4.1.4. Identification of the risks and hazards associated with the operation of the air system during the flight test program and proposed mitigation actions to minimize the probability and/or consequences of the identified risks.

4.4.1.5. A description of the maintenance concept proposed for maintaining the airworthiness of the air system during the flight test program.

4.4.2. The PM's airworthiness assessment should be provided to the TRB as part of the information package required by the TRB Chair. The assessment should also be provided to the AFRL DTA and will serve as an initial input into the AFRL DTA's independent airworthiness assessment.

4.5. Airworthiness Determinations. There are three main categories in which a particular test aircraft/program may fall: civilly registered, government owned (including Mission Design Series [MDS] aircraft), and non-civil registered /non-government owned MDS. As a result, there is a multi-path process for airworthiness assessment and issuance of an airworthiness flight authorization. The process is adaptable, with solutions which can be applied through an in depth understanding of airworthiness considerations and DoD, AF, and Federal Aviation Administration (FAA) policy.

4.5.1. Civil-Registered Air System.

4.5.1.1. Manned. A civil assessment occurs when the aircraft is owned and operated by a civilian (i.e. non-government) organization (i.e., COCO), and will be flown and maintained in compliance with applicable FAA civil airworthiness requirements/procedures. The system must possess either a Standard FAA Airworthiness Certificate or one of a number of Special FAA Airworthiness Certificates, *and* the composition of the flight test program must be such that it can be accomplished wholly under the existing airworthiness certificate and within the purview of 14 Code of Federal Regulations (14 CFR). In this case, the AFRL DTA will review the certificate, any documented FAA Operating Limitations/flight restrictions, any Supplemental Type Certificates, FAA Form 337, *Major Repair & Alteration (Airframe, Powerplant, Propeller, or Appliance* and/or FAA Form 8110-3, *Statement of Compliance with Airworthiness Standard*, and verify the operating conditions for the flight test program are consistent with the existing or newly obtained certificate. Normally, if these conditions are met, the DTA will issue an airworthiness flight authorization in the form of a CAO declaration letter.

4.5.1.2. In the event the flight test cannot be conducted under an existing FAA airworthiness certificate, or within the purview of 14 CFR, or it is not practical to obtain a new FAA certificate, the AFRL DTA will declare the flight test program to be a PAO. The appropriate Airworthiness Authority will review the final test plan; evaluate any available design and airworthiness criteria compliance data; and, review the program risk assessment, proposed risk mitigation actions, and proposed operating restrictions.

4.5.1.2.1. Due to the unique liability of the government for PAOs, AFRL/DO will coordinate a tailored GFR inspection of the aircraft operator's operation (IAW Defense Contract Management Agency Instruction (DCMAI) 8210.1C, *Contractor's Flight and Ground Operation*). After the actions identified in Paragraph 4.7 are completed, the Airworthiness Authority will issue an Airworthiness Flight Authorization in the form of a PAO/MFR Declaration letter.

4.5.1.3. Unmanned. If the system is a UAS registered under 14CFR Part 107, the operation may be declared a CAO. If, for the purposes of the test, the system cannot be operated under 14CFR Part 107, then the AFRL DTA will declare the operation PAO.

4.5.2. Mission Design Series (MDS) and/or Government-Owned. If the aircraft to be used is an MDS, the airworthiness determination will be the responsibility of the appropriate Air Force Life Cycle Management Center (AFLCMC) program office CE and the AF TAA (for a USAF MDS). If the system is determined by the AFRL DTA to be an aircraft belonging to another US military service or government agency, then that organization will be requested to conduct the airworthiness assessment and issue an airworthiness flight authorization. If required, the AFRL DTA will assist the PM in obtaining an MFR (USAF) or equivalent document (other US military service or government agency) from the organization responsible for the aircraft being utilized in the AFRL S&T program. Once an airworthiness flight authorization has been obtained from the appropriate organization, the AFRL DTA will forward it to AFRL/DO so a flight test approval may be considered.

4.5.3. Non-Civil Registered/Non-MDS Airworthiness Assessment. If the air system under consideration is not a government owned or operated MDS, and is not civilly registered, either the AF TAA or the AFRL DTA will have the authority to perform the airworthiness assessment and issue the airworthiness flight authorization. This category include UAS that are not registered under 14CFR Part 107, but are owned and operated by AFRL.

4.5.3.1. Manned. The AFRL DTA will assist the PM in obtaining the airworthiness assessment by the AF TAA if necessary. AFRL/EN will notify the PM when the AF TAA has issued an MFR.

4.5.3.2. Unmanned. If the air system is unmanned, and is a Group 1, 2, or 3 UAS operating in restricted airspace, or operating in the national airspace (NAS) with an FAA-issued Certification of Authorization (COA), then the AFRL DTA or AFRL DTA delegated representative will be the airworthiness authority. If the UAS is a Group 4 or 5 UAS, then the AF TAA will serve as the responsible airworthiness authority.

4.6. Airworthiness Data Package. Programs involving flight tests should plan to present as much of the following information as is currently available at the FTPM (recognizing that additional incremental submittals will be necessary as more detailed information becomes available):

4.6.1. A description of the type and general configuration of the air system to be utilized in the flight test program. Identify the air system as a manned system, UAS, new or existing aircraft type, modified aircraft, military MDS aircraft, commercially-developed aircraft, foreign designed aircraft, etc. Include a summary configuration description, size and major dimensions, maximum takeoff gross weight (TOGW), permissible flight envelope, and general performance capabilities. For a UAS, define the group/category, type of control system (pilot operated or autonomous) communication radio/links and describe the general characteristics and operation of the ground control station.

4.6.2. A summary of any previous or currently valid civil or military airworthiness certifications (e.g., Military Type Certificate [MTC]; FAA Type Certificate [TC]; FAA Supplemental Type Certificate, [STC]) held by the air system, or any military flight releases previously issued by the Air Force or other military services or government agencies, including the dates and terms of issue, applicable flight restrictions, and expiration dates.

4.6.3. A description of the general test concept and planned flight test effort, including a draft test plan if available and planned interfaces with other test organizations (Note: a draft test plan will likely not yet be available at this point in time, but a final detailed test plan will be required before the airworthiness flight authorization and final flight authorization will be issued). Include a description of the planned test location, test ranges or types/classes of airspace in which the flight test will be conducted, approximate test and airspace boundaries, notional flight paths, weather restrictions (if any), and communications requirements.

4.6.4. A description of the maintenance concept for the aircraft during the test program and plans for maintaining continued airworthiness (and existing airworthiness certificates, if applicable).

4.6.5. A summary of available air system design and performance data pertaining to the ability of the system to safely attain, sustain, and complete flight, including any engineering/technical information developed to show compliance with applicable military or civil airworthiness criteria (see Appendix A). Include a description of the certification basis for any existing airworthiness certificates, and any mishap data (if applicable). The AFRL DTA may request copies of selected portions of an existing certification basis to support the airworthiness assessment.

4.6.6. A description of any planned modifications to the air system, including a summary of pertinent design details which might have an impact on airworthiness, and a description of any analyses, simulations, or test data which show how the planned modification complies with applicable airworthiness criteria (military airworthiness criteria from MIL-HDBK-516C, *Civil Airworthiness Criteria* from Federal Aviation Regulations [FAR]). Describe how additional hardware and software will be installed and qualified as safe to fly. For civil aircraft, include copies of any valid FAA STC, FAA Forms 337, or FAA Forms 8110-3. The AFRL DTA may request copies of some of this information from the program manager to support the independent airworthiness assessment.

4.7. Independent Airworthiness Assessment. At the FTPM, the AFRL DTA's independent airworthiness assessment process begins. The AFRL DTA shall make an initial determination whether the proposed air system flight test effort falls within the authorities delegated to the DTA by the AF TAA. If the proposed effort falls within the AFRL DTA's delegated authorities, the DTA will proceed to accomplish their independent airworthiness assessment. If the aircraft being used is a civil registered air system, the AFRL DTA will make an initial determination as to whether the activity will be considered a CAO or PAO flight.

4.7.1. After the FTPM, the assessment will continue with a review of the program's draft flight test plan, PM's airworthiness assessment, and the program manager-provided airworthiness data package, TRB charts and minutes, and signed AFRL Form 19B, *AFRL Technical Review Board*.

4.7.2. At the SRB, the DTA will provide the initial airworthiness risk assessment based on the information provided at that point. Once signed SRB minutes and a final flight test plan is provided to the AFRL DTA, a final airworthiness risk assessment will be made. Once the DTA's independent airworthiness assessment has been completed, the airworthiness technical risk assessment will be provided for inclusion on the AFRL Form 19A/19C to be sent to the AFRL Test Approval Authority for risk acceptance. The AFRL DTA will be furnished a copy of the signed AFRL Form 19A or 19C documenting risk acceptance by the applicable AFRL TAA as determined by the level of risk identified.

4.7.3. Once a signed 19A or 19C is provided to the AFRL DTA, documenting acceptance of the risk by the AFRL TAA, the AFRL DTA will issue the airworthiness flight authorization in the form of a CAO Declaration Letter, a PAO/MFR, or an MFR, and forward to AFRL/DO for submittal to the FOA. A change in the Flight Test Plan via AFRL Form 19C, that affects previously approved or introduces new air system configurations requires an assessment by the AFRL DTA to determine if a new MFR needs to be issued.

4.8. Blanket MFRs. The AFRL Airworthiness office issues a special type MFR for lower risk SUAS activities which may cover multiple vehicle types. These MFRs are intended to provide more flexibility and agility when operating within predetermined limits. Blanket MFRs included Bounded, Facility, and Range MFRs. Current Blanket MFRs may be found on the Airworthiness SharePoint site (**https://cs2.eis.af.mil/sites/20856/EN_Comm/ADB/Forms/AllItems.aspx**).

4.8.1. Bounded MFRs.

4.8.1.1. Bounded MFRs are assigned to a specific group of lower risk SUAS operating within specific constraints. When applicable, the AFRL DTA will assign the program to a Bounded MFR and annotate the assignment on the Form 19A or 19C. A sample of the current Bounded MFR for Group 1 and 2 SUAS can be found in Attachment 4.

4.8.1.2. If, after being assigned to the Bounded MFR, it is determined that the system needs to fly outside the limitations of the MFR, the AFRL DTA will be notified for a new Airworthiness Flight Release before exceeding the limitations of the Bounded MFR. See the AFRL/EN SharePoint site for the current list of Bounded MFRs.

4.8.1.3. Once assigned, the Bounded MFR allows CEs to assert the airworthiness of specific systems and requires TD-level tracking of air vehicle configuration changes. The assertion letter will include the make, model, and tail numbers of the SUASs to be used and an airworthiness technical risk level for the platforms. TD CEs will archive assertion letters (See template in Attachment 3) and assessment documentation on the AFRL/EN SharePoint repository for cross-TD collaboration. CEs are encouraged to leverage previously signed assertion letters and documentation from other TDs to simplify the airworthiness release process when utilizing similar platforms.

4.8.2. Facility MFRs

4.8.2.1. Facility MFRs are issued to cover indoor or netted operations within an approved facility. A facility MFR may be issued once the AFRL Form 4 and Facility Operations Manual have been approved.

4.8.2.2. If, after issuance of the Facility MFR, it is determined that the system needs to fly outside the limitations of the MFR, the AFRL DTA will be notified for a new Airworthiness Flight Release before exceeding the limitations of the Facility MFR. See the AFRL/EN SharePoint site for the current list of Facility MFRs (**https://cs2.eis.af.mil/sites/20856/EN_Comm/ADB/Forms/AllItems.aspx**).

4.8.3. Range MFRs.

4.8.3.1. Range MFRs are issued to cover operations within a specific geographical area, similar to the FAA's Certificates of Waiver or Authorization. Coordination is required with the Range Control Authority for the proposed area of operations.

4.8.3.2. If, after issuance of the Range MFR, it is determined that the system needs to fly outside the limitations of the MFR, the AFRL DTA will be notified for a new Airworthiness Flight Release before exceeding the limitations of the Facility MFR. See the AFRL/EN SharePoint site for the current list of Range MFRs.

4.8.4. PMs & S&Es should check the Airworthiness SharePoint site for the most current Blanket MFRs. If the current MFRs do not provide the necessary operational envelope for a project, PMs or S&Es may request issuance of a new Blanket MFR at the FTPM or directly with the AFRL Airworthiness Office. Alternatively, a traditional, tail-number specific MFR may be issued for the vehicle(s) to allow for operations with an expanded envelope.

4.8.5. The Airworthiness SharePoint is located at **https://cs2.eis.af.mil/sites/20856/EN_Comm/ADB/Forms/AllItems.aspx**, and includes the currently approved Blanket MFRs, CE assertion letters, assessment documentation, and other references for Blanket MFR employment.

4.9. Issuance of Flight Authorization. AFRL S&T programs incorporating flight tests require FOA approval prior to test initiation. This ensures the tests are conducted in accordance with FARs and/or applicable AFIs and MAJCOM supplements. The FOA will issue the flight authorization after successful completion of the SRB, documented risk acceptance by the appropriate AFRL TAA, and issuance of an airworthiness flight authorization by the appropriate airworthiness authority.

4.10. Conduct of Flight Test. In all cases, once an airworthiness flight authorization and a final flight authorization have been issued by the AFRL DTA and FOA, respectively, it will be the responsibility of the PM to ensure the approved flight test plan is executed IAW the terms and conditions of these releases.

WILLIAM T. COOLEY, Major General, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 62-601 *USAF Airworthiness,* 11 June 2010

AFMCSUP to AFI 62-601, *USAF Airworthiness,* 28 March 2016

AFPD 63-1, *Integrated Life Cycle Management*, 3 June 2016

AFRLI 61-103, *AFRL Research Test Management*, 28 October 2015

AFRLMAN 99-103, *AFRL Flight Test and Evaluation,* 21 May 2007

DoDI 5030.61, *DoD Airworthiness Policy,* 24 May 1013

MIL-HDBK-516C, *Airworthiness Certification Criteria*, 12 Dec 2014

United States Air Force Airworthiness Bulletins (USAF AWB)

Prescribed Forms

AFRL Form 19A, *AFRL Safety Review Board*

AFRL Form 19B, *AFRL Technical Review Board*

AFRL Form 19C, *Test Plan Amendment Summary*

Adopted Forms

AF Form 847, Recommendation for Change of Publication

Abbreviations and Acronyms

AFRL DTA—Air Force Research Laboratory Delegated Technical Authority

AF TAA—Air Force Technical Airworthiness Authority

AFRL TAA—Air Force Research Laboratory Test Approval Authority

CAO—Civil Aircraft Operation

CE— Chief Engineer

CFR—Code of Federal Regulations

COA— Certificate of Authorization

COCO—Contractor Owned, Contractor Operated

DTA— Delegated Technical Authority

FAA— Federal Aviation Administration

FAR—Federal Aviation Regulation

FOA— Flight Operations Authority

IAW— In Accordance With

MAJCOM— Major Command

MDS—Mission Design Series

MFR—Military Flight Release

MTC—Military Type Certificate

NAS— National Air Space

PAO—Public Aircraft Operation

PM— Program Manager

sUAS—Small Unmanned Air System

SRB— Safety Review Board

STC— Supplemental Type Certificate

S&E— Scientists and Engineers

TAA—AFRL Test Approval Authority (AFRL TAA)

TD— Technology Directorate

TC— Type Certificate

TRB—Technical Review Board

TRR—Test Readiness Review

UAS— Unmanned Aerial System

USAF AWB—United States Air Force Airworthiness Bulletin

Terms

AFRL Delegated Technical Authority—A senior engineer in AFRL/EN who meets criteria established by the AF TAA and is delegated by the AF TAA to exercise specific airworthiness authorities.

AFRL Test Approval Authority—The AFRL official who is responsible for acceptance of the airworthiness and residual safety risks.

Air Force Technical Airworthiness Authority—The AF official authorized to define airworthiness standards, approve a certification basis, issue findings of compliance, issue Military Type Certificates and other flight releases, and delegate selected airworthiness authorities to qualified individuals.

Airworthiness— The property of an air system configuration which enables it to safely attain, sustain, and complete flight in accordance with its approved usage and operating limits.

Airworthiness Certification— A document signifying that an air system design is in compliance with its approved certification basis.

Airworthiness Flight Authorization—A document signifying that a flight test article has undergone an independent airworthiness assessment and has been granted approval from an airworthiness perspective to engage in flight operations. It may take the form of a USAF MFR,

an equivalent document from another US military service or government agency, or a Civil Aircraft Operations (CAO) Determination Letter.

Airworthiness Technical Risk— The independently assessed, unmitigated risk to the air vehicle's ability to safely attain, sustain, and terminate flight in accordance with approved usage and operating limits, per AFI 62-601, USAF Airworthiness.

Blanket MFR—An MFR issued for lower risk SUAS activities which may cover multiple vehicle types. Includes Bounded, Facility, and Range MFRs.

Bounded MFR—An MFR issued for specific sets of Commercial Off-the-Shelf (COTS) unmanned air vehicles which meet the constraints identified in the MFR.

Civil Aircraft Operation—This is an operation of a civil aircraft fully within the limits and conditions of its Federal Aviation Administration (FAA) Airworthiness Certificate and applicable operating regulations under 14 Code of Federal Regulations (CFR).

Certification Basis—The set of approved airworthiness certification criteria that are used to assess the airworthiness of a specific air system.

Contractor Owned Contractor Operated— Aircraft owned and operated by a private entity receiving compensation via USAF contract, agreement, or other means to provide products or services in support of research and development activities, science and technology activities, flight testing, operator training, operational missions, or other USAF interests.

Design—Based Airworthiness Assessment - A design-based airworthiness assessment shall be conducted when (a) an airworthiness certification basis can be established consisting of a specified set of design criteria, and (b) the design of an air system can be assessed for compliance with the specified criteria. This is the only path which will lead to military certification of the type design and airworthiness certification of individual aircraft.

Facility MFR—An MFR issued to cover indoor or netted operations within an approved facility.

Government Flight Representative— A rated U.S. Military officer, or Government civilian in an aviation position, to whom the Approving Authority has delegated responsibility for approval of contractor flights, procedures, crewmembers, and ensuring contractor compliance with applicable provisions of DCMA INST 8210.1C.

Group 1 UAS—A UAS weighing less than 20 pounds and operating at less than 1200 feet AGL and 100 knots.

Group 2 UAS—A UAS weighing between 21 and 55 pounds and operating at less than 3,500 feet AGL and 250 knots.

Group 3 UAS—A UAS weighing less than 1320 pounds and operating at less than 18,000 feet AGL and 250 knots.

Group 4 UAS—A UAS weighing more than 1320 pounds and operating at less than 18,000 feet at any airspeed.

Group 5 UAS—A UAS weighing more than 1320 pounds and operating at more than 18,000 feet at any airspeed.

Independent Airworthiness Assessment— An assessment of air system airworthiness conducted by the AF TAA, AFRL DTA, or other authorized official in the US Army, US Navy, or other US government agency.

Military Handbook 516C (MIL—HDBK-516C) – A tri-service publication containing potentially applicable airworthiness certification criteria and corresponding tailorable standards and methods of compliance.

Mission Design Series—A group of aircraft of a similar design configuration which are functionally equivalent from an airworthiness perspective. For example the F-15C, F-16D, C-130J are all MDS.

Military Flight Release—A document which grants approval to fly specific aircraft of a documented design configuration for a finite period of time at specific locations under specified conditions and flight restrictions.

Military Type CertificateTC—A document which provides evidence that a military air system design is in full compliance with its approved certification basis.

Non—Design-Based Airworthiness Assessment - A non-design-based airworthiness assessment is conducted when it has been determined by the AF TAA/DTA that a design-based airworthiness certification cannot reasonably be accomplished, but when there is a compelling military need to operate the air system. This would typically be the case for a system in which design and/or airworthiness criteria compliance information is prohibitively difficult or costly to obtain. When followed to a successful conclusion, the result of this process is an AF TAA/DTA issuance of airworthiness flight authorization. This allows operation of aircraft for which the design based certification basis and/or certification compliance status is unknown or indeterminate. The non- design-based process is used to identify and assess the inherent risks of operating these aircraft and to formally acknowledge acceptance of these risks by the organization responsible for their flight operations.

Non-reportable Modification— Any permanent or temporary configuration change or alteration to an air system that does not have a significant impact on airworthiness as defined in AFI 62 601 Attachment 3.

Public Aircraft Operation— PAO is operation of a civil aircraft outside the purview of its FAA Airworthiness Certificate (e.g., configuration, operational use, or maintenance) and applicable operating regulations under 14 CFR.

Range MFR— MFR issued to cover operations within a specific geographical area.

Reportable Modification— Any permanent or temporary configuration change or alteration to an air system that has a significant impact on airworthiness as defined in AFI 62-601 Attachment 3.

Small UAS—Unmanned Air systems that are either a Group 1, 2 or 3 UAS.

United States Air Force Airworthiness Bulletin— Airworthiness Bulletins (AWB) written by the Air Force Life Cycle Management Center which implements the U.S. Air Force airworthiness policy and instructions, while providing the detailed procedures and activities required for airworthiness certification.

Attachment 2

AIRWORTHINESS ASSESSMENT CRITERIA

Figure A2.1. Airworthiness Assessment Criteria.

Civil-Registered Air Vehicles

- How was air system modified
  - Design data available?
  - Show compliance data or methods of compliance available?
  - Supplemental Type Certificate (STC) available?
  - Local/operator modifications in accordance with Part 43.
- Previous MFR
- Previous airworthiness assessments (AF or other Governmental Agency)
  - FAA Airworthiness Certificate (Part 21, Subpart H)
  - FAA Form -337s, with supporting FAA 8110-3
  - Aircraft Logbook Entries
  - Engineering Analysis of any modifications (including software changes) to:
- Structure, Propulsion, Flight Controls, Electrical/Hydraulic Systems
- Outer mold line changes which may affect aerodynamics, performance, or handling qualities
  - Any changes to operating and flight rules (Part 91) 550

Small UAS AW Data Assessment Criteria

Airworthiness is the ability for an air vehicle to attain, sustain and complete flight within its described operational envelop. The assessment is a data driven process in which we leverage as much as possible from prior airworthiness approvals. As a minimum the following areas will be addressed in the assessment:

- Airframe
- Propulsion systems
- Power systems
- Control systems
- Sensor(s) integration
- Miscellaneous (launch systems, support equipment, etc.)

There are two main paths to follow in performing an airworthiness assessment: design based and non-design base.

The design based path may be chosen if the design data and experimental results are available, and it will follow a MIL-HNBK-516 tailored outline. Desired data to accomplish a design based assessment should include but not be limited to, drawings, schematics, construction specifications, stress analysis, propulsion analysis and test data, stability & control analysis, subsystems testing or bench results, system integration, weight & balance, performance estimation

PROGRAM		
Aircraft Make and Model		
Design Criteria or Standards (e.g., SAE, ASTM, MIL, etc.)		
Present Operational State (i.e., Flying, Flyable, non-flyable, storage)		
PHYSICAL CHARACTERISITICS		
	FIXED WING OR ROTARY	
	LENGTH (in/ft)	
	WINGSPAN or Rotor Span (in/ft)	
	HEIGHT (in/ft)	
	EMPTY WEIGHT (lbs)	
	MFG MAX GROSS TOW (oz/lbs) ACTUAL/PROJECTED TOW (oz/lbs)	
	CENTER of GRAVITY RANGE (in/ft)	
	STATIC MARGIN (% of MAC) Fixed Wing only	
	CARGO CAPACITY (oz or lbs)	
	ENGINE(S) TYPE and POWER RATING (HP or Watts)	
	SENSORS/CAMERAS ADDED (Description, location, power requirement, mounting, telemetry)	(If yes, add to narrative below)
	FUEL CAPACITY (oz/lbs or Amp-hrs)	

	ELECTRICAL POWER Batteries or generator (all): Propulsion batteries: Control batteries: Payload batteries:	
	STRUCTURAL MATERIAL(S)	
	AERODYNAMIC FEATURES (i.e., fuselage shape, number of wings, high or low wing, flaps/flaperon/aileron, tail, etc.,)	
	Any Installed Modification/Alteration? (If yes describe in paragraph below)	
OPERATIONAL CHARACTERIISTICS		
	AUTOPILOT (i.e., Model, Type, Frequency, firmware, use etc.)	
	PRE-FLIGHT CHECKLIST (Date of last Revision)	
	AUTOPILOT FAIL SAFE MEASURES	
	ENDURANCE (min/hr)	
	SPEED (kts) MAX CLIMB CRUISE STALL	
	ALTITUDE (ft) MAX (MSL or AGL) MIN (MSL or AGL) (MAX OPERATING DENSITY ALTITUDE)	
	WEATHER SUSCEPTIBILITY and AVOIDANCE (i.e., winds at launch, at recovery, crosswinds, and tail winds), Visual Range/VMC, etc.)	
	Safety or Flight Critical systems, sub-systems and/or components	
FLIGHT HISTORY in this CONFIGURATION		
	Airspace (Unrestricted, Restricted, Both)	
	Number of Flights	
	Number of Flight Hours	
	Number of Mishaps	
	Mishap Type, Description, Cause and Outcome	

If no formal design data exist, an alternate path is chosen to assert the vehicle airworthiness and residual risk for its mission. Most times only limited or no design data is available on small UASs. This prompts the use of different information paths or combination of them in order to produce a complete picture to be assessed. Using any available design data combined with different information paths may create sufficient data to determine a level of risk to airworthiness which may be acceptable to fly under restrictions. For either case a detailed vehicle configuration description is required and outlined below.

This guide highlights common data paths that may be used by a program office to document an airworthiness package for assessment.

Non Design Path 1: Vehicle inspection and/or Configuration Audit

Many sUAS used by AFRL are COTS airframe kits assembled and/or configured by the user by adding a propulsion system, controls, autopilot, and sensors. Independent of who builds or completes the system, the builder must follow a factory manual(s) to ensure proper construction and system integration. The factory manuals can be used to conduct the assessment to attest the vehicle will perform to manufacturer's specifications or within stipulated limits. A SME or independent entity should conduct a detailed inspection of the vehicle against the manual(s) or manufacturer specifications and write a report stating its airworthiness. Static margin, weight and balance, and structural load margins should be verified.

In the cases where no factory manuals or detailed specifications exist, the user/operator should conduct a detailed inspection and configuration audit of the air vehicle in coordination with an independent SME, and create a report with the findings.

The inspection should be broken down into the following sections:

Airframe
Propulsion systems
Power systems
Control systems
Sensor(s) integration
Miscellaneous (launch systems, support equipment, etc.)

The following is a sample inspection checklist that may be used for a non-modified COTS RC airframe, sUAS, or variant.

SUSTAINMENT/LOGISTICS and SUPPORT EQUIPMENT (SE)		
	Description, Use (Example Launch - Catapult, Catch net)	
	Describe the Interface and Function of SE with Air System (manual or automated)	

Air System Modifications Description Narrative
(Internal or external mod? Does it affect structural integrity? Does it change the outer mold line) (include photo(s))

Non Design Path 2: Legacy knowledge / experience

In some cases, a flight squadron(s) or team(s) may have accumulated considerable flight hours on a COTS platform, or the same has been used by many others for years, but little or no manufacturer detailed engineering data exist. When documented in detail, this legacy knowledge or experience gained through operations may be used to assert or prove flightworthiness to subsequent tail numbers, and project towards modified versions of the same model vehicle to estimate new operational limits. This information should include, but be not limited to: airspeed range @ MTOW, max and minimum take off weights, propulsion units (engine + propeller), CG ranges, external modifications, internal or structural modifications, antenna locations, autopilot installations and programming, electrical power systems loads, etc. manufacturer technical and maintenance manuals should be included or referenced.

Non Design Path 3: Calculated Data

Whenever the physical dimensions of the vehicles are known, basic stability control data, and performance can be calculated from areas, moments, weights, and other physical characteristics. A dimensioned 3 view drawing or picture of the aircraft must be included for reference. Available thrust calculators may be used if electric propulsion is used, or propeller-thrust databases if known components are used in the system. Roll-Pitch-Yaw stability, tail volume coefficients could be calculated with some level of confidence. If time and resources are available a digital aircraft model can be run through basic aerodynamic analysis tools to characterize its behavior. Autopilot flight simulators can be used to explore autopilot gains and settings, but may never be used as aerodynamic analysis tools.

Path 4: Limited Design Parameters and Data

Whenever some (but not all) design data exist, it is possible to create a tailored airworthiness criteria (TAC) using MIL-HDBK-516C as an outline (framework) to review top level or qualitative criteria to assess the vehicle airworthiness. These must include main topics such as Structures, Flight Technology, Propulsion, and Subsystems. Results from FEA, CFD, wind tunnel, and ground tests can be used as supporting data. Confidence factors or error must be included in the results. This method may be augmented with any other non-design paths to yield a complete picture to assess.

Attachment 3

TD CHIEF ENGINEER AIRWORTHINESS ASSERTION

Figure A3.1. TD Chief Engineer Airworthiness Assertion.

MEMORANDUM FOR RECORD Date

FROM: Technical Directorate Chief Engineer

TO: AFRL Delegated Technical Authority (DTA) for Airworthiness

SUBJECT: ASSERTION OF AIRWORTHINESS OF sUAS

1. This Memorandum for Record is to document that an airworthiness (AW) assessment has been conducted by (name) Chief Engineer of (TD) for (Make-Model), tail number(s) to assert its/their airworthiness technical risk is (low-med-high) towards its purpose and approved usage per the AFRL test approval process.

2. This airworthiness assertion is to meet the requirements of AFRLI 61-601 Airworthiness, and AFI 62-601, USAF Airworthiness.

3. By this letter I also assert that AFRL/(TD Two- Ltr. Symbol) will:

a. Operate the vehicle according to its technical and operational baselines.
b. Follow test procedures and conditions identified in the approved test plan and amendments.
c. Maintain the vehicle in order to preserve its airworthy condition.
d. Document changes and modifications to the vehicle configuration using AFRL Form 26-1.
e. Report to AFRL/EN any vehicle changes in regards to its characteristics or usage that will preclude operation within the limits of the bounded military flight release AFRL-0001.

1st Ind, AFRL/XX

TD Chief Engineer, AFRL/XX

Approved / Disapproved
2nd Ind, AFRL/EN

AFRL/EN Director Signature Block
AFRL Delegated Technical Authority

Attachment 4

SAMPLE BOUNDED MFR

Figure A4.1. Sample Bounded MFR.

Air Force Research Laboratory

MILITARY FLIGHT RELEASE No. AFRL-0002

1. Program Name: AFRL / Various Group 1&2 Small Unmanned Air Systems (SUAS) CONUS test operations only	**5. Aircraft Type/Serial/Tail Number:** **a.** Group 1&2 Commercial Off-The-Shelf SUAS, with limited and approved flight envelops as stated in No 6, and associated COTS Ground Control Stations. **b.** New SUAS designs up to 5lbs
2. Program Office Symbol: AFRL All directorates	
3. Issue Date: 17 March 2017	
4. Expiration: 17 March 2019	

6. Terms and Conditions:

This flight release is issued pursuant to USAF Policy Directive 62-2, AF instruction 62-601, USAF Airworthiness; and AFRLI 61-602, AFRL Airworthiness for AFRL SUAS in flight involved in flight tests.

All flights will follow test procedures, and conditions identified in their corresponding approved test plan and applicable AFRL Form 19C test plan amendments.

Aircraft will be flown, operated, and maintained within their existing manufacture's operating envelope and as specified on the test events documents, and safe distance from the site boundaries. Periodic inspections of the aircraft and critical systems shall be conducted in order to maintain airworthiness.

Modifications and configuration changes (h/w or s/w) must be approved by the TD Configuration Control Board (CCB) and documented on AFRL Form 26-1 in accordance with AFRLMAN 99-103. Any modifications must be recorded internally on the AF Form 26-1, and be available upon request for airworthiness audits. Any changes that results in exceeding the limits of this MFR will make this flight authorization void.

Maximum COTS aircraft takeoff weight shall not exceed 55lbs, and 5lbs for newly designed aircraft. Maximum altitude shall not exceed 3500-ft AGL or test site limit, whichever is less. All flights shall be in clear visual range of the pilot in command (PIC) and/or a certified observer in contact with the PIC.

Maximum aircraft airspeed shall not exceed 100mph, or manufacturer Vne, whichever is less.

All payload configurations must successfully complete an EMI/EMC systems level test.

All clouds must be at least 500 ft. above operating altitude.

Winds for all flight stages shall remain within limits approved in the test plan.

All flights will be in Visual Meteorological Conditions (VMC) from morning to evening civil twilight; no precipitation.

Multiple vehicle operation (MVO) from a single ground control station is allowed when using airworthy approved vehicles. Compliance with AFRL MVO Blanket Waiver of Feb 17 restrictions is required.

This risk-based airworthiness determination and subsequent flight release is based, in part on, but not limited to, the assumption that legacy or standardized design and fabrication principles were used to assemble and modify this COTS aircraft; application of ORM principles; and that this aircraft has accumulated a positive flight history when flown effectively in accordance with current procedures.

NOTE: This MFR is not a safe-to-fly or airworthy determination, nor is it an airworthiness certification as defined in Air Force Policy Directive 62-6, USAF Airworthiness, but an

airworthiness flight authorization to proceed to conduct this flight test program under the operating limitations and/or restrictions described herein as based on an assessment, and acceptance, of the program's residual risks.	
7. Supporting Documentation:	**Date:**
AF instruction 62-601, USAF Airworthiness	11 June 2010
AFRLI 61-601, AFRL Airworthiness	March 2017
AFPD 11-5 Small Unmanned Aircraft Systems Rules, Procedures, and Services	08 October 2015
AFI 11-502 v3 Small Unmanned Aircraft System Operations	21 August 2015
8. Signature (Name/Title):_____ AFRL Delegated Technical Authority	