Safety Standards for Commercial-Use Unmanned Aerial Vehicle
For "Fixed-Wing Aircraft, Used in Uninhabited Areas"

Japan UAV Association
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Chapter 1. Overview

Section 1. Purpose

This Standards sets forth any and all requirements for the Unmanned Fixed-Wing Aircraft to meet all of the safety design requirements based upon the existing state of the art (applicable as of March 2006) as well as any and all requirements for the Operator(s), the Mechanic(s) and the Owner(s) of the Unmanned Fixed-Wing Aircraft to comply with, in view of the ability thereof and for us to control and manage any of the Customer(s) not to allow them to use such Unmanned Fixed-Wing Aircraft for any antisocial behavior.

This Standards shall be enacted and implemented by the Japan UAV Association. Any rules of handling this Standards shall be in accordance with the provisions of the Section 5 of this Chapter.

Further, the Unmanned Rotary-Wing Aircraft shall be subject to the “Safety Standards for Commercial-Use, Unmanned, Rotary-Wing Aircraft” separately set forth by the Japan UAV Association.

Section 2. Subjects

The subject of this Standards shall be the Unmanned Fixed-Wing Aircraft which is operated in the Uninhabited Area(s) including the Beyond-Visual-Range.

As a general rule, such Items as have been manufactured or sold in Japan and are planned to be used in Japan shall be subject to this Standards. Further, the Super Lightweight Class Unmanned Aircraft having the weight of 20 kg to 50 kg shall be subject to this Standards, thus, such Unmanned Aircrafts as MINI Class with weight less than 20 kg, and Semi-Lightweight Class of 50 kg or more, Lightweight Class, or Ordinary Weight Class shall be excluded from the subjects of this Standards since the respective method of operation applicable to each of such Aircraft is greatly different from each other. The above-written scope of this Standards shall be summarized in the following Table 1:

(Classification of the Unmanned Fixed-Wing Aircraft in this Association is shown in the Figure 1)

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Unmanned Aerial Vehicle (UAV) (Note)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Conditions</td>
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<td>Rotary-Wing Aircraft</td>
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<td>(Unmanned Helicopter)</td>
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<td>Fixed-Wing Aircraft</td>
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<td>Radio Controls for Hobbies</td>
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<tr>
<td>Areas commonly used by Manned Aircraft</td>
<td>Separate Standards planned to be established</td>
</tr>
<tr>
<td>Inhabited Areas</td>
<td>Separate Standards</td>
</tr>
</tbody>
</table>

(Three cheers)
Uninhabited Areas | Beyond-Visual-Range | Separate Standards planned to be established | Scope of this Standards (Note) UAVs with weight less than 20 kg or 50 kg or more are excluded.  
| Within-Visual-Range | Pursuant to Safety Standards for Commercial-Use Unmanned Aerial Vehicle Rotary-Wing Aircraft in the Uninhabited Areas” | Scope of this Standards (Note) UAVs with weight less than 20 kg or 50 kg or more are excluded.  

(Note) Airships and etc. are excluded from the above-written scope.

Figure 1 Classification of Unmanned Fixed-Wing Aircraft

In the event that any airframe which has been manufactured in Japan is intended to be used in any overseas country, it is required for such airframe to meet any and all requirements as herein set forth in this Standards and any and all requirements as may be imposed in such applicable overseas country. In any event that any inconsistency or conflict arises between in this Standards and any law in such overseas country, it would be allowed for such requirements in such overseas country to apply in mutatis mutandis upon and after consultation made with the Japan UAV Association.

Further, those who attempt to export such UAV’s are required to go through all the applicable procedures required for registration with the
Japan UAV Association in accordance with Chapter 6, Customer Control Standards herein set forth, after having complied with the Export Trade Control Order (issued by Ministry of Economy, Trade and Industry). Furthermore, any and all responsibilities regarding such overseas export and the items so exported shall be solely borne by the exporter(s).

In the event that any airframe which has been manufactured in any overseas country and is intended to be operated in Japan, it is required for such airframe to comply with any relevant laws and regulations applicable in Japan (such as the Radio Law and etc.) as well as this Standards. And further, those who attempt to export to Japan or import into Japan shall notify the Japan UAV Association and confer with it regarding such attempt; provided, however, that any temporary operation including but not limited to any Demonstration Flights etc. shall be exempted from this requirement.

Section 3. Definitions

"Unmanned Fix-Wing Aircraft " shall mean such airframe which is capable of providing the aerial work service without any person on board. Included in such Unmanned Fix-Wing Aircrafts are Remote Control Type Airframe flying by means of remote operation function such as a Radio-Controlled Aerial Vehicle, Autonomous Type Airframe automatically flying any predetermined flight path only by means of flight control system and etc. installed on board, and such Airframe Type having both functions as described above; and this Standards covers such Unmanned Fix-Wing Aircrafts as having the autonomous flight function only or as having both functions of the autonomous flight function plus remote control flight function.

"Uninhabited Areas" shall mean the area where no humans are present on the affected ground. The flight altitude shall be, as a general rule, less than 150 m; provided, however, that, in case when the flight at the altitude exceeding 150 m is planned to be made, the Operator(s) is/are required to do adjustment with any ministries or agencies concerned pursuant to the Article 99-2 of the Aviation Law and perform such procedures as NOTAM issuance and etc. and shall operate after confirming with the Manufacturer any and all technical matters relating to the flight safety.

Within Visual Range" shall mean the range where the Operator can perform the Visual Guidance Control. "Beyond Visual Range" shall mean any range exceeding the above-described "Within Visual Range".

Section 4. Structure of Safety Security

Any and all requirements necessary for devising the Safe Operation of the Unmanned Fix-Wing Aircraft are more specifically described in and after the Chapter 2 of this Standards.
In this Section, we are describing the outlines of the Structure of Safety Security.

For any and all requirements necessary for devising the Safe Operation of the Unmanned Fix-Wing Aircraft, please see the following Table 2:

Table 2 Structure of Safety Security

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>Requirements for Securing the Safety</th>
</tr>
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</table>
| 1   | Design      | ・Designed not to allow to continue flying under any non-controllable conditions in case when any failure occurred.  
      |             | ・Designed, as the last resort at the time of any failure occurrence, so as to make the UAV compulsorily fall at such place where the failure occurred. |
| 2   | Maintenance and Inspection | ・The Operator(s) is/are required to surely implement the start-up inspection as one of the daily maintenance and inspection.  
      |             | ・The annual once/year inspection shall be surely implemented. |
| 3   | Operator(s) | ・The Operator(s) is/are required to obtain the Skill Certification after having received all the applicable Operation Instructions.  
      |             | ・Such Skill Certification given to the Operator(s) is such certificate as verifying and evidencing that the Operator(s) meet(s) the level of the requirements or more regarding the "Operation Skill" and the "Knowledge for the Safe Operation". |
| 4   | Operation   | ・Required to keep appropriate safety-distance from the Unmanned Fix-Wing Aircraft.  
      |             | ・Required to keep any humans away from the area where the Unmanned Fix-Wing Aircraft may possibly crash.  
      |             | ・As a general rule, required to have the ground altitude less than 150 m and to implement segregation from the flight area for manned aircraft. |
| 5   | Customer Control | ・No sale of the Unmanned Fix-Wing Aircrafts shall be allowed and made to such person as might use the UAV's for any anti-social activities such as terrorism.  
      |             | ・During the full period when Unmanned Fix-Wing Aircraft is being operated, to always keep performing Customer Registration Control through Maintenance and Inspection.  
      |             | ・After the Unmanned Fix-Wing Aircraft was completely disused for the operation, to confirm the complete disposition of such UAV. |

Section 5. Revisions to and Operation of the Standards

Procedural rule for revision to and operation of this Standards shall be as follows:

(1) Revisions

Any revision to this Standards shall be reviewed for the items, which the Chairman of this Association deemed necessary, upon request of any of the members of this Association and then made with the approval by the
Chairman of this Association at the General Meeting of the Japan UAV Association.

The revision shall be made once a year as a general rule, provided, however, that in the case when any urgent matter arose, such revision shall be made from time to time.

(2) Operation

Receipt of various applications as well as issuance of various confirmation notes and certificates and etc. shall be undertaken by the Japan UAV Association pursuant to this Standards.
Chapter 2. Design Standards

Section 1: Purpose

This Design Standards sets forth such technical requirements as necessary for securing the safety with respect to the Unmanned Fix-Wing Aircrafts which are provided for operation in the uninhabited areas (including the areas within visual range and beyond visual range), and sets forth the Application thereto, the Witness Inspection, the Certification and the Issuance of Performance Validation Tag.

Section 2: Subjects

This Design Standards covers the Unmanned Fix-Wing Aircrafts. The Japan UAV Association shall verify whether any Unmanned Fix-Wing Aircraft conforms to this Design Standards, and certify the same.

The definition of the Unmanned Fix-Wing Aircraft is as herein defined in the Section 3 of the Chapter 1.

This Design Standards sets forth the minimum design requirements necessary for the purpose of securing the safety.

With respect to any and all items relating to the performance and the quality, it is required as a precondition that each Manufacturer shall comply with the voluntary standards at its own responsibility, and therefore such items relating to the performance and the quality shall not be described in this Design Standards.

Section 3: Safety Design Standards

(1) The Function and/or the Performance

With respect to the function and/or the performance, the voluntary standards of each Manufacturer shall apply, however, such Manufacturer shall be required to submit the Performance Specifications Table as well as the Application Documents relating to the Structure. (The Appended Form 1 or 2 shall apply to the Items to be described.)

In such documents, the Manufacturer shall be required to clearly state any and all flight operation limits (such as weather, wind speed, flying speed, endurance, elevation, temperature and etc.)

During the Witness Inspection, it is required for the applicant to conduct the flight with weight equipped as described in the Application Documents by using the actual Airframe, and to prove that the applied Airframe is capable of autonomous flight without operator’s manipulation. Further, with respect to such Airframe as having the remote operation control function, it
is required for the Applicant to prove that the applied Airframe is capable to safely fly by operator’s manipulation; provided, however, that, as for such Airframe as having no other functions than the autonomous flight function, only the former capability may be deemed to satisfy the requirements.

(2) Solidity

To have such solidity as can withstand the ordinary operation. 
For the details, the Manufacturer’s voluntary standards shall apply.

(3) Durability

It is required for the applicant to conduct flight test and etc. for the time of the endurance time as set forth in the Manufacturer’s Performance Specifications or more, and to demonstrate the required durability. 
Please submit the flight record log book at the time of application.

(4) Safety Requirement Standards

The structure for failsafe not allowing the airframe to go out of control against the failure modes such as the conceivable failure shall have been established.

“Not allowing the airframe to go out of control” shall mean to have the airframe to make landing or fall in the predetermined area, and the Manufacturer shall clearly define such area.

And also, it is required that such structure is formalized in the manuals, and well-known to the Operator.

Further, any simultaneous occurrence of two independent failure modes does not need to be assumed but any simultaneous occurrence of two mutually-dependent failure modes shall be considered.

(5) Failure Modes such as Failures etc. To Be Considered

① Radio Wave
   • Deformation of command signal;
   • Communication Failure due to deterioration of radio wave circumstances and etc. (any interception, airframe attitude, multipath and etc.);
   • Transmission of abnormal command due to any failure of Earth Station;
   • Interference with other Earth Station;
   • Failure of any transmitter receiver;
② Sensor
   • Any Output Error, Sensor Failure and etc.
③ GPS
Any Non-Receipt, Failure and etc.

4 Control Computer
   • Failure and etc.

5 Control Software
   • Program Input Error and etc.

6 Flight Control System
   • Impossibility of Operation due to any electrical or mechanical troubles;

7 Engine
   • Engine Stop or Unexpected Increase of Engine Revolution due to any electrical or mechanical troubles;

8 Power Source
   • Unexpected Loss of Main Power Supply of any of the Airframe Systems
   • Unexpected Loss of Main Power Supply of any of the Ground Systems

(6) Other Matters To Be Considered

1 Scattering of any rotating objects
   • Protective measures for scattering of Engine and Propeller having been taken;

2 Safety Securing at the time of Power Connection (including ON operation)
   • Measures for Preventing Operator's Injury to be caused by any unexpected operation of Propeller at either time of connecting the battery or turning the power switch to ON having been taken;

3 Flight Monitor
   • Being able to always monitor the airframe status during flight;
   • And, being able to make the UAV promptly return or forcibly fall in case when the monitoring is interrupted;

4 Recording of Flight Specifications
   • Being able to record the flight specifications for investigating the causes in case of the occurrence of any accident.

5 Transmitter
   • Meeting the requirements of Radio Law set forth by Ministry of Internal Affairs and Communications.

Section 4. Application for Performance Validation

Those who intend to manufacture or sell the Unmanned Fixed-Wing Aircraft shall submit the application of the Appended Form 1 or the Appended Form 2 to the Chairman of this Association.

The following two cases exist with respect to such applications:
(1) The case where the application is made for any newly developed or imported items; or
(2) The case where any functionally important change was made to such airframe as has been already verified for the performance.

For sureness sake, the words “functionally important change” shall mean any of the following changes:

① Any big change on the Safety System;
② Any change that would cause any big operational effect to the user using the system.

In the event that the model was changed for any functionally non-important change, the Applicant shall be required to describe the content of such change in the written notification, the Appended Form 3, and submit the same.

Section 5. Witness Inspection for Performance Validation

Whenever any Application for the Performance Validation was made, the Chairman of this Association shall first verify the conformity with the design safety standards by documents examination, and then conduct the Witness Inspection with the applicant's attendance pursuant to the Witness Inspection Standards as set forth in the Attachment 2.

The Chairman of this Association shall conduct the acceptance/rejection determination or the success/failure decision based upon the result of the Witness Inspection, and inform such acceptance/success or rejection/failure to the Applicant.

In case of rejection/failure, the Chairman of this Association shall issue and deliver the Witten Opinion for Performance Improvement with his/her opinions regarding the reasons and improvement methods therefor attached thereto.

In case of Acceptance/success, the Chairman of this Association shall issue and deliver the Appended Form 1, Written Performance Validation.

In case when the Chairman of this Association accepted the written notification, the Appended Form 3, he/she shall first verify the content of the change, and then issue and deliver the Appended Form 2, the certificate of Type Supplement.

Section 6. Issuance of Performance Validation Tag

Those who intend to operate the Unmanned Fix-Wing Aircraft for their business shall be required to obtain or receive the issuance of the Performance Validation Tag.
Those who intend to obtain or receive the Performance Validation Tag shall submit the Appended Form 6, Written Notice for the Unmanned Fix-Wing Aircraft to the Chairman of this Association, and request for the issuance and delivery of the Performance Validation Tag therefor.

The Chairman of this Association shall issue and deliver to the Manufacturer the Performance Validation Tag to be sticked on such applicable Subject Aircraft.

Such Manufacturer who took the issuance and delivery of such Tag shall stick the Performance Validation Tag on a conspicuous portion of such applicable Subject Aircraft.
Chapter 3. Maintenance and Inspection Standards

Section 1. Purpose

For the purpose of continuing the safe flight of the Unmanned Fix-Wing Aircraft, it is indispensable for such Aircraft to be periodically maintained and inspected by the experienced mechanic(s), and therefore, the Aircraft shall be inspected, as a general rule, once per year.

This Maintenance and Inspection Standards sets forth the Qualification of the Mechanic(s) who conduct(s) the maintenance and inspection, the standards of the maintenance factory which will conducts the maintenance and inspection, and the Regular Inspection Tag which is the evidence proving that the required Inspection was completed.

Section 2. Obligations of the Owner(s) of the Unmanned Fix-Wing Aircraft

For the purpose of securing the safety, Owner(s) of the Unmanned Fix-Wing Aircraft shall receive the Inspection and Maintenance conducted by the Mechanic(s) at the Maintenance Factory qualified by the Japan UAV Association at least once every year.

Section 3. Contents of Inspection and Maintenance etc.

Since the content of the Inspection and Maintenance varies depending upon each manufacturer and each applicable kind of the airframe, and is different from each other, the Manufacturer shall establish the required content of Inspection as well as the required level of skill of the Mechanic(s), Facilities equipped by the Maintenance Factory and etc. for each different kind of the Airframe, and submit the same to the Japan UAV Association.

Section 4. Mechanic Competence Standards

Those who conduct the Maintenance (including Regular Inspection, and Repair or Alteration etc.) of any Unmanned Fix-Wing Aircraft shall obtain the Mechanic Competence Certificate issued by the Japan UAV Association.

There are the following two classes or kinds of such Mechanic Competence Certificate depending upon the level of the required skill:

① Mechanic Competence Certificate
   The Certificate evidencing that the Mechanic has the Skill and Knowledge capable of being involved in practical work for the
Maintenance of the Unmanned Fix-Wing Aircraft.

② Verification Mechanic Competence Certificate
Certificate evidencing that the Mechanic is capable of and qualified with issuing the Regular Inspection Tag as substitute on behalf of the Japan UAV Association at the occasion when the Maintenance of the Unmanned Fix-Wing Aircraft was conducted.

The Manufacturer shall define the knowledge and expertise necessary for each level of skill with respect to such Maintenance as applicable to such kind of the Airframe, and educate and train the Mechanic(s).

As for those who reached the established level, the Manufacturer may submit the Recommendation for the Competency Accreditation to the Japan UAV Association and such persons may take the issuance and delivery of the Competence Certificate.

The validity of such Competence Certificate shall be for three (3) years.

In such Competence Certificate, any and all kinds of the Airframes as well as the Navigation Systems that can be handled shall be clearly described.

Those who have received the delivery of such Competence Certificate shall take, prior to each expiry of the respective validity from such relevant delivery, the training course relating to the latest knowledge for the equipment as well as safety rule of the Unmanned Fix-Wing Aircraft which is implemented by the Manufacturer, and shall renew the Competence Certificate.

Section 5. Maintenance Factory Standards

Those factories which conduct the Maintenance (including Regular Inspection, and Repair or Alteration etc.) of any Unmanned Fix-Wing Aircraft shall obtain the Maintenance Factory Validation Tag issued and delivered by the Japan UAV Association.

Conditions that the Maintenance Factory should fulfill are:
(1) Those who have obtained the Mechanic Competence Certificate (part-timer is acceptable) are being on the register;
(2) Verified Mechanic(s) (part-timer is acceptable) is/are being on the register;
(3) Such facilities as are necessary for conducting the Maintenance of the applicable Airframe are being equipped with;
(4) The maintenance work of the applicable Airframe can be performed;
(provided, however, that, as for such maintenance factories as are owned by the Manufacturer itself, such requirements as set forth in the above paragraphs (1) and (2) are exempted from the requirements.)

Those who intend to obtain and receive the Validation Tag as the
Maintenance Factory are required to submit the Appended Form 5, Application accompanied by the Manufacturer's recommendatory letter, which has proven that the factory is in compliance with the standards established by the Manufacturer of such Airframe, to the Chairman of this Association.

In any case when the Application was made, the Chairman of this Association shall issue and deliver the Appended Form 5, Maintenance Factory Validation Tag to such Factory as recognized as meeting any and all requirements for the Maintenance Factory.

Section 6. Regular Inspection Tag

The Regular Inspection shall be conducted in accordance with the following procedure at the factory which received the issuance and delivery of the Maintenance Factory Validation Tag:

1. Mechanic(s) who has/have received the Mechanic Competence Certificate will conduct the Inspection and Maintenance;
2. Verified Mechanic(s) will conduct the Inspection for the applicable Airframe based upon the Inspection and Maintenance Record;
3. The Verified Mechanic(s) who conducted the Maintenance for the Airframe shall submit the Written Report of Completion of Maintenance to the Japan UAV Association and shall take the issuance and delivery of the Regular Inspection Tag.
4. Such Regular Inspection Tag shall be sticked on a conspicuous portion of the applicable Airframe.

The Japan UAV Association shall identify the legitimate owner and shall, in case that any change has been made, revise the registration ledger accordingly, based upon the described content (owner and the presence or absence of the changed portions for the storage area, and etc.) of the above-written Written Report of Completion of Maintenance.
Chapter 4. Operator Qualification Standards

Section 1. Purpose

Those who operate the Unmanned Fix-Wing Aircraft shall obtain the Skill Competency Accreditation Certificate issued by the Japan UAV Association. The following two (2) kinds are set forth as the qualification of the Operator:

- Remote Control Operator’s Qualification: The Qualification required for operating the Unmanned Fix-Wing Aircraft by using the function of Remote Control Operation
- Autonomous Control Operator’s Qualification: The Qualification required for operating the Unmanned Fix-Wing Aircraft by using the function of Autonomous Control Operation

This Operator Qualification Standards clearly defines the requirements for up-bringing the Operators of the Unmanned Fix-Wing Aircraft.

Section 2. Training System

The Training System shall be those referring to such Training Curriculum as well as such instructor(s) as prepared for instructing the operation of the Unmanned Fix-Wing Aircraft.

Since who is the manufacturer and what is the content of the Training System vary depending upon each manufacturer and each applicable kind of the Airframe, and are different from each other, the Manufacturer of the Unmanned Fix-Wing Aircraft shall establish the required Training System relating to upbringing the Operator(s) for each applicable Airframe, and shall submit the same to the Japan UAV Association.

The Training Curriculum shall be divided into the Training for the Practical Skill of Operation and the School Course Training.

The Training Curriculum shall cover such items or content as shown below as minimum:

1. Common Practical Skill: To be able to practically operate the applicable Airframe. Specifically, to be able to appropriately perform the following works:

   A: Assembling the Airframe;
   B: Fuel Replenishing (or Installing the battery for Motor Drive);
   C: Operational Check of Steerage and Functions (including flaring of the parachute, if any parachute is equipped.)
D: Starting and stopping the Engine;
E: Removing the remaining fuel (or Removing the battery for Motor Drive)
F: Disassembling and Storing the Airframe;
G: Charging the used batteries.

2. Practical Skill for Remote Control: As for the Practical Skill for the Operation of the Unmanned Fix-Wing Aircraft, it is required to meet the “Operational Technology Verification Standards for the Unmanned Fix-Wing Aircraft” as set forth in the Attachment 3.

3. Practical Skill for Autonomous Operation: It is required to implement the simulated operation on the ground for the operational procedure necessary for the operation of the Autonomous System, and learn the same.
   A: Starting-Up and Setting (including Setting Flight Patterns) of Autonomous System;
   B: Ending and Storing Data for the Autonomous System;
   C: Learning the emergency procedure to be taken for the Failure Modes such as Failures etc. To Be Considered set forth in the Chapter 2, Section 3 (5), ”Safety Requirement Standards”

4. School Course Training: To learn such knowledge required for safely Operating the Unmanned Fix-Wing Aircraft.
   A: Regarding the applicable Laws (Aviation Law, Radio Law);
   B: The Standards regarding the Safety of the Unmanned Fix-Wing Aircraft (i.e. the Content of this Standards);
   C: Any and all applicable Safety Regulations for the Operator to specially comply with and the Role of the Operator;
   D: The Knowledge and the Coping Strategy regarding the Safety Measure(s) (i.e. the Structure of the Fail-Safe) for the applicable Airframe;
   E: The Airframe Structure of and the daily Inspection Items for the Unmanned Fix-Wing Aircraft;
   F: The Composition and the Operation Theory of the Autonomous System; and
G: Setting-up the Flight Pattern(s).

The Instructor(s) shall mean such person(s) who himself/herself or themselves have/has the prominent skill as operator(s), and can carry out the duty as the lecturer of the Training Curriculum. Manufacturer(s) shall responsively bring up the Instructor(s). Manufacturer(s) is/are required to attach the Instructor List at the time when the Training System is submitted.

Since the Training Facility and the Training Materials largely vary depending upon the performance requirements and etc. for the relevant Airframe, no standards therefor are herein set forth and such standards shall be entrusted to each respective Manufacturer, who shall be required to perform the Training at such place and by such equipment as can sufficiently educe the performance of the applicable Airframe.

If any change(s) occurred in the Training Curriculum and/or Instructor(s), such change(s) shall be promptly notified to the Japan UAV Association.

Section 3. Competency Accreditation Certificates

Those who have completed the training sponsored by the Manufacturer and passed the “Operational Technology Verification Standards for the Unmanned Fix-Wing Aircraft ” may receive the issuance and delivery of the Competency Accreditation Certificate from the Japan UAV Association by means of the Application by the Instructor of the Manufacturer (as set forth in the Appendix Form 5).

In said “Competency Accreditation Certificate”, any and all kinds of the Airframes being able to be handled shall be clearly described.

In the event that the operation of any other type of Airframe is planned after the Competency Accreditation Certificate was first received for the original type of Airframe, the procedure of Expansion of Type of Airframe shall be cleared. Such procedure shall be processed by the Application made by Instructor(s) of the Manufacturer.

The validity of the Operator Competency Accreditation Certificate shall be for three (3) years after the issuance and delivery thereof. (The renewal thereof shall be made every three (3) years with such type of Airframe for which the Competency Accreditation Certificate was originally received). Those who have received the delivery of such Operator Competency Accreditation Certificate shall take, prior to each expiry of the respective validity from such relevant delivery of the Certificate, the training course relating to such matters as relate to the latest status for the technology and
the overall system of the Unmanned Fix-Wing Aircraft and shall renew the Operator Competency Accreditation Certificate.

Those who lost or destroyed the Operator Competency Accreditation Certificate shall notify the Japan UAV Association of such fact without delay, and shall receive the re-issuance thereof.

At any time when the Operator operates the Unmanned Fix-Wing Aircraft, he/she shall carry the “Operator Competency Accreditation Certificate” with him/her, and, if and when he/she was requested by any person concerned to present the Certificate, he/she shall present the same.
Chapter 5. Operation Standards

Section 1. Purpose

In this Chapter, any and all requirements are summarized which the Operator(s) shall comply with from Safety viewpoint, when the Operator(s) actually operate(s) the Unmanned Fix-Wing Aircraft.

Section 2. Obligations of the Operator(s)

Those who operate the Unmanned Fix-Wing Aircraft, regardless of the kind of such Unmanned Fix-Wing Aircrafts, shall operate the same in the uninhabited areas and shall do their best effort so as not to allow the UAV to deviate from such uninhabited areas.

Further, such Operators shall, at any time when they operate the UAV’s, avoid, as much as possible, to fly over the property of any third party.

In the event that they will unavoidably have such UAV’s fly over the property of any third party, they shall obtain and be given with such approval as may be provided by the local government and etc. that has the jurisdiction over such flight area.

Any and all the requirements stated in this Operation Standards set forth such requirements common to all Unmanned Fix-Wing Aircrafts only, and the Operator(s) shall be also obligated to comply with all the operational regulations for Safety which will be established and set forth (for each different type of Airframe) by the Manufacturer separate from this Operation Standards.

(1) Within Visual Range Flight
(2) Beyond Visual Range Flight
(3) Matters to be specially noted during Operation

(1) Within Visual Range Flight

In this Section, any and all requirements applicable to the Operator’s “Within-Visual-Range Flight” are set forth.

① Not to allow any human to access to the area in the direction of movement of the Unmanned Fix-Wing Aircraft.

In case when the Operator has the Unmanned Fix-Wing Aircraft make a take-off or landing, any human shall be securely kept away from such area as specified in the following drawing.
② To have the Unmanned Fix-Wing Aircraft fly at the ground altitude less than 150 m.
③ Not to allow or operate any flight exceeding the specified capability and flight limitation of the applicable Airframe System. The capability and flight limitation of the Airframe System shall be based upon the technical data such as Operation Manual(s) and etc. issued by the Manufacturer.
④ To assign appropriate number of safety-watchers so as to secure the Unmanned Fix-Wing Aircraft to fly in the uninhabited areas.

(2) Beyond Visual Range Flight

In this Section, any and all requirements applicable to the Operator’s “Beyond Visual Range Flight” are set forth.
In addition to the requirements applicable to the “Within-Visual-Range Flight” as set forth in the Above Section (1), Operator(s) is/are required to comply with the following requirements:

① To let the flight status be securely monitored at and by the Earth Station at all times.

(3) Matters to be noted during Operation

① In case when the Operator(s) will fly at the altitude of 150 m or more, or around airway, or around airport:
   It is required to implement the adjustments with ministries and agencies concerned as well as the various required procedures including the NOTAM issuance pursuant to the Article 99-2 of the Aviation Law, and to operate the flight after confirmation was made with the Manufacturer relating to any and all technical requirements for the flight safety.

② In case when the Operator(s) will fly around any other transport facilities:
   Not to fly over any highway or any railroad.

③ Setting-up the Area of Limited Entry and compliance therewith:
   Operator(s) shall be required to setup the Area of Limited Entry depending upon flight altitude, flight speed, wind speed and etc. The Area of Limited Entry shall mean such area where the Unmanned
Fix-Wing Aircraft is presumed to fall or make an emergency landing due to any failure.

Further, it shall be required for the Manufacturer to clearly describe the procedure for setting-up the Area of Limited Entry in the Operation Manual(s) and etc.
Chapter 6. Customer Control Standards

Section 1. Purpose

The Purpose of this Customer Control Standards is to arrange such status as enabling to continuously grasp who of what country, and where and for what purpose and how, uses the Unmanned Fix-Wing Aircraft, for the purpose of not allowing any of the Unmanned Fix-Wing Aircraft to be used for any antisocial behavior.

Section 2. Obligations of the Seller(s)

The Seller shall be required to grasp the Owner of the Unmanned Fix-Wing Aircraft at the time of the Sales (including the Re-Sale), the Operation and the Disposing.

The Japan UAV Association shall establish and keep the Customer Control Ledger relating to the Unmanned Fix-Wing Aircraft for which it granted the Type Certificate, and grasp the Owner of the Unmanned Fix-Wing Aircraft.

Those Unmanned Fix-Wing Aircrafts which shall be registered on the Customer Control Ledger shall be such Unmanned Fix-Wing Aircrafts as domestically manufactured (including those which have been exported) and/or those Unmanned Fix-Wing Aircrafts as have been imported into Japan.

Since there are such laws and regulations as relative to this Chapter, all of which shall be complied with:

Any and all Laws and Regulations relating to the Foreign Trade Control by Ministry of Economy, Trade and Industry;
Any and all Laws and Regulations relating to the Waste Management for the Environment; and
Any and all Laws and Regulations relating to the Terrorism Prevention of the National Police Agency (and/or the Fire Defense Agency) and etc.

Section 3. Customer Control at the time of Sales

At the time when any Unmanned Fix-Wing Aircraft is going to be sold, any Sales Company of the Unmanned Fix-Wing Aircrafts shall perform a prior examination of the Customer, and avoid selling to any nation, association, or individual and etc. who has any antisocial purposes.
At the time of sales, such Sales Company shall include such promises as written below in the written agreement which will be executed by and between the Seller and the Purchaser and shall have such agreement signed by the Purchaser:

1. Not to use for any other purposes than the purpose agreed on at the time of the sales without permission of the Seller;
2. Not to sell or transfer to any third party without permission of the Seller; and
3. In case when the Purchaser ceased the use, to perform the complete disposal through the Seller as a general rule.

The Seller of the Unmanned Fix-Wing Aircraft, when he/she sold the Unmanned Fix-Wing Aircraft, shall notify and submit the Appended Form 8, Written Notice of Registration of the Unmanned Fix-Wing Aircraft to the Japan UAV Association. In such Form, Type, Nomenclature, Manufacture Number, Purpose of Use, Sales Company, Owner, User, and Location of Storage of the Airframe sold shall be clearly described.

The Japan UAV Association shall, after having accepted the above-written Notice, verify the Owner and the User, and issue and deliver the Appended Form 8, the Japan UAV Association’s Registration Tag of the Unmanned Fix-Wing Aircraft, if no uncertainty was found. Further, at the same time, the Japan UAV Association shall register the same in the Customer Management Ledger of the Unmanned Fix-Wing Aircraft.

Any resale or transfer from the Customer to any third party is prohibited as a general rule. If and when such resale or transfer is contemplated to be made, a prior written notice shall be given to the Seller.

The Seller shall perform the Customer Examination of said third party, and verify that such Customer has no antisocial purpose.

If and when any resale contract or transfer contract was established, the procedure, which is exactly same as the procedure applicable at the time when a new sale was made, shall be followed and performed.

The Japan UAV Association shall cooperate with any and all Ministries and/or Agencies concerned and do its best effort so as not allow any anti-social organization to use the Unmanned Fix-Wing Aircraft.

Section 4. Airframe Control during Operation

Any and all Customers shall do their best management effort for the Unmanned Fix-Wing Aircraft not to have any theft.

Further, such Customers shall, if and when they had an accident of theft by any chance, promptly notify the police as well as Sales Company and
the Japan UAV Association of such theft.

The Seller shall securely confirm by visual observation at least once per year that the Airframe is in the control of the Owner, and shall perform the procedure for the registration renewal.

And further, the Seller shall verify if there is any change in the Owner or the User, and submit, if there is any change, the **Appended Form 10**, Written Notice and shall apply for the renewal of the Customer Management Ledger of the Unmanned Fix-Wing Aircraft.

In case when there was any change in the Owner or the User, or in the Purpose of Use or the Location of Storage, the Japan UAV Association shall revise the description in the Customer Management Ledger of the Unmanned Fix-Wing Aircraft.

In the event that any antisocial act was recognized in the Method of Operation, the Seller shall be required to take a legal measure such as report to the police, after having performed the consultation with the Japan UAV Association.

Section 5. Disposing Procedure

In case when the Owner of the Unmanned Fix-Wing Aircraft ceases the operation of the Airframe, such Owner shall bring with him/her the applicable Unmanned Fix-Wing Aircraft to the Seller and shall perform the applicable deregistration procedure.

The Seller shall destroy the Unmanned Fix-Wing Aircraft the operation of which is going to be ceased so that such Unmanned Fix-Wing Aircraft can no longer fly, and at the same time perform any and all processes which are corresponding to any applicable laws and regulations for the recycle promotion, and make copies of the evidences (any photograph showing the destruction of the major parts with the Manufacture Number or the manifesto relative to the recycling and etc.), and submit the separately **Appended Form 11**, Written Notice of Deregistration of the Unmanned Fix-Wing Aircraft to the Japan UAV Association.

In the event that the Owner continues to keep the Unmanned Fix-Wing Aircraft without disposing it based upon the Owner's desire, the Seller shall dispose several number of the major parts of the Unmanned Fix-Wing Aircraft and after having made such Unmanned Fix-Wing Aircraft disable for flying, take a written oath stating that such Owner will not use said Unmanned Fix-Wing Aircraft, and shall apply for the Suspension of the Registration to the Japan UAV Association.
If and when the Japan UAV Association accepted such Application for the Deregistration, the Japan UAV Association shall process such Deregistration from the Customer Management Ledger of the Unmanned Fix-Wing Aircraft.

If and when the Japan UAV Association accepted such Application for the Suspension of the Registration, the Japan UAV Association shall process such Suspension in the Customer Management Ledger of the Unmanned Fix-Wing Aircraft.
Witness Inspection Standards
For Performance Validation of Unmanned Fix-Wing Aircraft

1. Inspection Items
   (1) Validation of Specifications and Various Elements (by actual goods, drawings and etc.)
   (2) Validation of Safety Requirement Standards
   (3) Flight Test
   (4) Others (Durability, Maintenance and etc.)

2. Validation of Specifications and Various Elements
   (1) Prime Movers
       To verify that the Basic Engine, the Fuel System, the Ignition System, the Cooling System, Power Generating/Starting System and etc. are corresponding to those described in the Written Application by the actual goods, drawings and etc. which have been presented by the Applicant:
   (2) Airframe Structure
       To verify that the Main Wing, the Fuselage, the Landing Gear and etc. are corresponding to those described in the Written Application by the actual goods, drawings and etc. which have been presented by the Applicant:
   (3) Radio Transmitter-Receiver for Operation
       To verify that the Transmitter, the Receiver, the Antenna and etc. are corresponding to those described in the Written Application by the actual goods, drawings and etc. which have been presented by the Applicant:
   (4) Control Equipment
       To verify that the Sensor, Control System, Control Software and etc. are corresponding to those described in the Written Application by the actual goods, drawings and etc. which have been presented by the Applicant:
   (5) Control Actuator
       To verify that the Flight Control System such as Control Actuator and etc. are corresponding to those described in the Written Application by the actual goods, drawings and etc. which have been presented by the Applicant:

3. Validation of Safety Requirement Standards
   (1) To verify in kind to the utmost, based upon the Written Review for the Compatibility to Safety Requirement Standards included in the Application, that the Fail-Safe Mechanism is operable.
   (2) To verify that the record of Flight Specifications is properly functioning by recording at the time of Flight Test and reproducing after Flight Test.
4 Flight Test
   (1) Measurement of the Airframe to be provided for Flight Test
       ① Dimensional Measurement
           To measure the Principal Dimensions described in the Written Application (Overall Length, Overall Height, Overall Width and etc.).
           The tolerance shall be ±10 mm, and, in case when it is difficult to follow such tolerance requirement, to apply in advance.
       ② Measurement of the Maximum Take-Off Weight
           To verify that the Maximum Take-Off Weight is such as described in the Written Application.
           The tolerance shall be such tolerance as described in the Written Application.

   (2) General Matters with respect to the Flight Test
       ① The wind speed at the time of the Flight Test shall be within the Operation Limit.
       ② Any and all other weather conditions such as rain, fog and etc. shall also be within the Operation Limit.

   (3) Flight Test by the Remote Control Operation
       To conduct the flight satisfying the requirements as set forth in the Appendix 3.
       Further, the Flight Patterns shall be applied in advance.

   (4) Flight Test by the Autonomous Flight
       To verify, by such method as applied for by the Applicant in advance, that the UAV is capable of autonomous flying.

   (5) Substantiation of Failsafe Function
       If any Failsafe Function that can be safely verified is installed, to verify the same by actual flight during Flight Test.

5 Witness Inspectors
   Witness Inspectors shall be comprised of two (2) or more persons appointed out of the Members of this Association and one (1) or more person(s) appointed out of the Non-Members of this Association. The Chairperson of the Unmanned Fixed-Wing Aircraft Technical Committee shall be made the Inspection Committee Chairperson of the Member(s) of this Association, and such Inspection Committee Chairperson shall appoint one (1) or more, and further an Advisor may be included as the inspector to be appointed out of the Member(s) of this Association.

6 Others (Durability, Maintenance and etc.)
(1) To verify by written records the test result for the Endurance Time exceeding the Endurance Time set forth by the Applicant.

(2) To verify that the procedure has been prepared relating to the Maintenance and Operation.

(3) To conduct the question-and-answer with respect to any doubts raised by a technical scrutineer: (provided, however, that it is not required to reply any matters relating to any company secrets.)
Validation Standards for Operation Technology of Unmanned Fix-Wing Aircraft

(1) Operation Technology Validation Standards

① To be able to have the Unmanned Fixed-Wing Aircraft stably take-off and climb up to the Position of the Altitude 50 m;
② To be able to have the Unmanned Fixed-Wing Aircraft make a stable linear flight for 10 seconds or more or for the distance of 400 m or more at a fixed altitude of 50 m;
③ To be able to have the Unmanned Fixed-Wing Aircraft make a stable clockwise turning and a stable counter-clockwise turning at the Altitude of 50 m (A turning shall be 180 degree.);
④ To be able to have the Unmanned Fixed-Wing Aircraft stably climb (linear flight) to the Position from the Altitude 50 m up to the Altitude 70 m;
⑤ To be able to have the Unmanned Fixed-Wing Aircraft stably descend (linear flight) to the Position from the Altitude 70 m down to the Altitude 50 m;
⑥ To be able to have the Unmanned Fixed-Wing Aircraft stably descend down from the Position of the Altitude 50 m and make a safe landing.
(Note: The Flight Speed shall be the Cruising Speed.)

(2) Method of Flight Operation Technology Judgment

① Judgment for verifying the degree of the Operation Technology shall be made by the Accredited Certifying Member designated by the Japan UAV Association in accordance with the “Technical Skill Test Report Card for use with Operating Technology Verification Standards for the Unmanned Fixed-Wing Aircraft”.

② Judgment on the Technology shall be made in accordance with the two (2) stages “Passing” and ”Failing” defined in the Technical Skill Test Report Card.

(3) Flight Operation Technology Judgment Standards
No judgment of ”Failing” shall be included in any Technical Skill Validation Items.

(4) Notice of Operation Technology Judgment
The Judgment shall be notified to the participants with the reasons attached.
<Pre-Conditions>

① The Airframe used for the Flight Test shall be such Airframe as the Airframe or the equivalent Airframe described in the Technical Qualification Certificate.

② The Operator may be permitted to obtain any and all information for knowing the Position and Altitude／Speed by means of the speech information from his/her assistant.

③ The Accredited Certifying Member shall obtain the objective flight data out of the Position／Altitude／Speed data obtained through the GPS information and conduct the examination.
Technical Skill Test Report Card for use with Operating Technology Validation Standards for the Unmanned Fixed-Wing Aircraft

Affiliation

<table>
<thead>
<tr>
<th>Examinee's Number</th>
<th>Name of Examinee</th>
<th>Examiner</th>
</tr>
</thead>
</table>

| Judgment | “Passing”, “Failing” |

(Pre-Flight Check)  
* Put a Checkmark “☑” to the Pertinent Item.

| Verification of Safety of the Surroundings | Existence or Non-existence of entry by any humans (witness and etc.) to the “take-off and landing area” |
| Verification of Radio Wave | Feasibility of using the Frequency (including Existence or Non-Existence of Noise Radio Wave) |
| Verification of Wind Speed | Wind Speed of 5 m/sec. or less |
| Verification of Wind Direction | Wind Direction (Windsock and etc.) |
| Refueling | Refueling up to Fill-Up a tank |
| Battery Charging (including Motor-driven power source) | Fully charging all of the batteries |
| Operation Check on Flight Control System | Operation of Steering Surface, Engine (Motor) Rotation Control, Operation of Safety Device |
| Visual Verification on Airframe External Appearance | Propeller, Main Wing, Tail Wing, Fuselage, and Airframe Leg |
| Operation Check on Equipment and etc. | Ground Monitoring Equipment, Data link Equipment |

(Skill Qualification Check)  
* Put a Checkmark “○” to the Pertinent Item.

<table>
<thead>
<tr>
<th>Subtracting Items</th>
<th>Passing</th>
<th>Failing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking-Off/Climbing</td>
<td>Stable</td>
<td>Instable (*1)</td>
</tr>
<tr>
<td>Straight Flight</td>
<td>Altitude</td>
<td>± 20 m or less</td>
</tr>
<tr>
<td></td>
<td>Path</td>
<td>± 20 m or less</td>
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<tr>
<td>Revolving Flight</td>
<td>Altitude</td>
<td>± 20 m or less</td>
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<td></td>
<td>Path</td>
<td>Two (2) times of the standard turning radius or less</td>
</tr>
<tr>
<td>Climbing</td>
<td>Altitude</td>
<td>± 20 m or less</td>
</tr>
<tr>
<td>Flight</td>
<td>Path</td>
<td>± 20 m or less</td>
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<tr>
<td>-----------------------------</td>
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<td>----------------</td>
</tr>
<tr>
<td>Descending Flight</td>
<td>Altitude</td>
<td>± 20 m or less</td>
</tr>
<tr>
<td></td>
<td>Path</td>
<td>± 20 m or less</td>
</tr>
<tr>
<td>Descending/Landing</td>
<td>Landing</td>
<td>within two (2) times</td>
</tr>
<tr>
<td>(All Items)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

※ “Instable” in the Item of Taking-Off/Climbing shall be applicable to the cases where such situations with respect to the Airframe as falling under the following status occurred:

- Passing through the area out of the runway (standard width 25 m)
- Major Change in the Airframe Attitude

provided, however, that the case when the Airframe was brought down for safety due to the fact that the Airframe has become instable because of the natural phenomenon such as side wind or gust of wind shall be excluded.