

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO

Joint Forces Air Component Commander

ADDRESS

650 Florida Ave
Tyndall Air Force Base Florida 32403

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

Operation of the MQ-1 (Predator A), Unmanned Aircraft System (UAS) in:

- The Class D airspace area of the Rafael Hernandez Airport (TJBQ) under the jurisdiction of the Rafael Hernandez Airport Traffic Control Tower (ATCT)
- Within the Special Security Instruction 99.7 as depicted in Attachment 2 and,
- Class A airspace within the jurisdiction of the San Juan CERAP and,
- Oceanic airspace in the San Juan Flight Information Region (FIR)/Control Traffic Area (CTA) under the jurisdiction of the San Juan CERAP as depicted in Attachment 1.
- See special provisions.

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

Note-This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

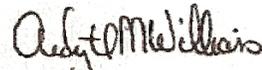
Special Provisions are set forth and attached.

This certificate 2010-ESA-4 effective from January 25, 2010 through February 28, 2010 and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

FAA Headquarters, AJR-36

(Region)



Ardyth Williams

(Signature)

January 24, 2010

(Date)

Air Traffic Manager, Unmanned Aircraft Systems

(Title)

ATTACHMENT to FAA FORM 7711-1

Issued To: Joint Forces Air Component Commander

Address: 650 Florida Ave
Tyndall Air Force Base Florida 32403

Activity: Operation of the MQ-1 (Predator A), Unmanned Aircraft System (UAS) in:

- The Class D airspace area of the Rafael Hernandez Airport (TJBQ) under the jurisdiction of the Rafael Hernandez Airport Traffic Control Tower (ATCT)
- Within the Special Security Instruction 99.7 as depicted in Attachment 2 and,
- Class A airspace within the jurisdiction of the San Juan CERAP and,
- Oceanic airspace in the San Juan Flight Information Region (FIR)/Control Traffic Area (CTA) under the jurisdiction of the San Juan CERAP as depicted in Attachment 1.

Purpose: To prescribe UAS operating requirements (outside of active restricted and/or active warning area airspace) in the National Airspace System (NAS) for the purpose of operational flights in support of Unified Response..

Dates of Use: This Certificate of Authorization (COA) 2010-ESA-4 is valid from January 25, 2010 through February 28, 2010.

General Provisions:

- Due to the emergency nature of the COA the FAA may approve operations that it would not approve under ordinary circumstances.
- The review of this activity is based on our current understanding of UAS operations, and the impact of such operations in the NAS, and therefore should not be considered a precedent for future operations. As changes occur in the UAS industry, or in our understanding of it, there may be changes to the limitations and conditions for similar operations.
- All personnel connected with the UAS operation must comply with the contents of this authorization and its provisions.
- This COA will be reviewed and amended as necessary to conform to changing UAS policy and guidance.

Safety Provisions:

Unmanned Aircraft (UA) have no on-board pilot to perform see-and-avoid responsibilities, and therefore, when operating outside of restricted areas, special provisions must be made to ensure an equivalent level of safety exists for operations had a pilot been on board. In accordance with 14 CFR Part 91, General Operating and Flight Rules, Subpart J-Waivers, 91.903, Policy and Procedures, the following provisions provide acceptable mitigation of 14 CFR Part 91.113 and must be complied with:

- For the purpose of see-and-avoid, visual observers must be utilized at all times except in Class A airspace, active restricted areas, and active warning areas. The observers may either be ground based or in a chase plane. The UA must remain within a lateral distance of no more than 2 Nautical Miles and 3,000 feet vertically from the visual observer. The distances listed are the maximum distance; at no time will the UA be operated at a distance beyond the visual line of sight for the visual observer.
- UAS pilots will ensure there is a safe operating distance between manned and unmanned aircraft at all times in accordance with 14 CFR 91.111, *Operating Near Other Aircraft*, and 14 CFR 91.113, *Right-of-Way Rules*. Cloud clearances and VFR visibilities for Class E airspace will be used regardless of class of airspace. Additionally, UAS operations are advised to operate well clear of all known manned aircraft operations.
- The dropping or spraying of aircraft stores, or carrying of hazardous materials (included ordnance) outside of active Restricted, Prohibited, or Warning Areas is prohibited unless specifically authorized in the Special Provisions of this COA.

Airworthiness Certification Provisions:

- UA must be shown to be airworthy to conduct flight operations in the NAS.
- Public Use Aircraft must contain one of the following:
 - A civil airworthiness certification from the FAA, or
 - A statement specifying that the Department of Defense Handbook "Airworthiness Certification Criteria" (MIL-HDBK-516), as amended, was used to certify the aircraft or
 - Equivalent method of certification.

Pilot / Observer Provisions:

- **Pilot Qualifications:** UA pilots interacting with Air Traffic Control (ATC) shall have sufficient expertise to perform that task readily. Pilots must have an understanding of and comply with Federal Aviation Regulations and Military Regulations applicable to the airspace where the UA will operate. Pilots must have in their possession a current second class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol or Drugs, applies to UA pilots.
- Aircraft and Operations Requirements:
 - Flight Below 18,000 Feet Mean Sea Level (MSL).
 - UA operations below 18,000 feet MSL in any airspace generally accessible to aircraft flying in accordance with visual flight rules (VFR) require visual observers, either airborne or ground-based. Use of ATC radar alone does not constitute sufficient collision risk mitigation in airspace where non-cooperative airborne operations may be conducted.
 - Flights At or Above 18,000 Feet Mean Sea Level (MSL)
 - When operating on an instrument ATC clearance, the UA pilot-in-command must ensure the following:
 1. An ATC clearance has been filed, obtained and followed.

2. Positional information shall be provided in reference to established NAS fixes, NAVAIDS, and waypoints. Use of Latitude/Longitude is only authorized in oceanic airspace.
- **Observer Qualifications:** Observers must have been provided with sufficient training to communicate clearly to the pilot any turning instructions required to stay clear of conflicting traffic. Observers will receive training on rules and responsibilities described in 14 CFR 91.111, *Operating Near Other Aircraft*, 14 CFR 91.113, *Right-of-Way Rules*, cloud clearance, in-flight visibility, and the pilot controller glossary including standard ATC phraseology and communication. Observers must have in their possession a current second class (or higher) airman medical certificate that has been issued under 14 CFR 67, Medical Standards and Certification, or a military equivalent. 14 CFR 91.17, Alcohol or Drugs, applies to UA observers.
 - **Pilot-in-Command (PIC) –**
 - **Visual Flight Rules (VFR) as applicable:**
 - The PIC is the person directly responsible for the operation of the UA. The responsibility and authority of the pilot in command as described by 14 CFR 91.3 (or military equivalent), applies to the UAS PIC.
 - The PIC operating a UA in line of sight must pass at a minimum the required knowledge test for a private pilot certificate, or military equivalent, as stated in 14 CFR 61.105, and must keep their aeronautical knowledge up to date.
 - There is no intent to suggest that there is any requirement for the UAS PIC to be qualified as a crewmember of a manned aircraft.
 - Pilots flying a UA on other than instrument flight plans beyond line of sight of the PIC must possess a minimum of a current private pilot certificate, or military equivalent in the category and class, as stated in 14 CFR 61.105.
 - **Instrument Flight Rules (IFR) as applicable:**
 - The PIC is the person directly responsible for the operation of the UA. The responsibility and authority of the pilot in command as described by 14 CFR 91.3 (or military equivalent), applies to the UAS PIC.
 - The PIC must be a certified pilot (minimum of private pilot) of manned aircraft (FAA or military equivalent) in category and class of aircraft flown.
 - The PIC must also have a current/appropriate instrument rating (manned aircraft, FAA or military equivalent) for the category and class of aircraft flown.
 - **Pilot Proficiency – VFR/IFR as applicable:**
 - Pilots will not act as a VFR/ IFR PIC unless they have had three qualified proficiency events within the preceding 90 days.
 - The term “qualified proficiency event” is a UAS-specific term necessary due to the diversity of UAS types and control systems.
 - A qualified proficiency event is an event requiring the pilot to exercise the training and skills unique to the UAS in which proficiency is maintained.

- Pilots will not act as an IFR PIC unless they have had six instrument qualifying events in the preceding six calendar months (an event that requires the PIC to exercise instrument flight skills unique to the UAS).
- **PIC Responsibilities:**
 - Pilots are responsible for a thorough preflight inspection of the UAS. Flight operations will not be undertaken unless the UAS is airworthy. The airworthiness provisions of 14 CFR 91.7, Civil Aircraft Airworthiness, or the military equivalent, apply.
 - One PIC must be designated at all times and is responsible for the safety of the UA and persons and property along the UA flight path.
 - The UAS pilot will be held accountable for controlling their aircraft to the same standards as the pilot of a manned aircraft. The provisions of 14 CFR 91.13, *Careless and Reckless Operation*, apply to UAS pilots.
- **Pilot/Observer Task Limitations:**
 - Pilots and observers must not perform crew duties for more than one UA at a time.
 - Chase aircraft pilots must not concurrently perform either observer or UA pilot duties along with chase pilot duties.
 - Pilots are not allowed to perform concurrent duties both as pilot and observer.
 - Observers are not allowed to perform concurrent duties both as pilot and observer.

Standard Provisions: These provisions are applicable to all operations unless indicated otherwise in the Special Provisions section.

- The UA PIC will maintain direct two-way communications with ATC and have the ability to maneuver the UA per their instructions, unless specified otherwise in the Special Provisions section. The PIC shall comply with all ATC instructions and/or clearances.
- The UA shall operate with an operational mode 3/A transponder, with altitude encoding, or mode S transponder (preferred) set to an ATC assigned squawk.
- The UA shall operate with position/navigation lights on at all times during flight.
- The UA PIC shall not accept any ATC clearance requiring the use of visual separation or sequencing.
- VFR cloud clearances and visibilities for Class E airspace will be used regardless of class of airspace the UAS is operating in, except when operating in Class A airspace where 14 CFR Part 91.155 will apply.
- Special VFR is not authorized.
- Operations (including lost link procedures) shall not be conducted over populated areas, heavily trafficked roads, or an open-air assembly of people.
- Operations outside of active restricted areas, active warning areas, prohibited areas (designated for aviation use) and/or Class A airspace may only be conducted during daylight hours, unless authorized in the Special Provisions section.

- Operations shall not loiter on Victor airways, Jet Routes, Q Routes, IR Routes, or VR Routes. When necessary, transit of airways and routes shall be conducted as expeditiously as possible.
- Operations conducted under VFR rules shall operate at appropriate VFR altitudes for direction of flight (14 CFR 91.159).
- The UA PIC or chase plane PIC (whichever is applicable) will notify ATC of any in flight emergency or aircraft accident as soon as practical.
- All operators that use GPS as a sole source, must check all NOTAM's and Receiver Autonomous Integrity Monitoring (RAIM). Flight into GPS test area or degraded RAIM is prohibited without specific approval in the special provisions.
- At no time will TCAS be used in any mode while operating an unmanned aircraft.
- Only one UA will be flown in the operating area unless indicated otherwise in the Special Provisions.
- The Joint Forces Air Component Commander and/or its representatives, is responsible at all times for collision avoidance with non-participating aircraft and the safety of persons or property on the surface with respect to the UAS.

Special Provisions:

1. At present there will be a maximum of two Predators operating under this COA at any one time.
2. The take off window is from sunrise to one hour before sunset. The landing window is from one hour after sunrise until sunset. The intent of this provision is to restrict the aircraft from transiting to/from the airport and Class A airspace during the hours of darkness.
3. Departure Procedures
 - There will be a minimum of two and one half hours between departures.
 - The UA will depart TJBQ and proceed via departure procedures below to the Predator TFR. The UA will climb to initial ATC assigned altitude within the lateral confines of the TFR and remain within the lateral confines of the TFR until level at the final ATC assigned altitude. When level at ATC assigned altitude, the UA will depart the TFR direct to:

N 18° 30' 30" W 067° 30' 30" (Waypoint 2) then direct to

N 18° 54' 42" W 067° 48' 35" (Waypoint 3) then direct to

N 19° 01' 47" W 067° 59' 59" (Waypoint 4) then direct to

N 19° 00' 46" W 068° 01' 28" (Waypoint 5)

The UA will depart the San Juan FIR at Waypoint 5. The highest operating altitude will be assigned to the first departure; the next lowest appropriate altitude will be assigned to the second departure.

- Runway 8 – The Predator must initiate a right hand turn mid field and fly over the concrete, old taxi-way/ramp area, then do a slight turn to the right and fly out over the golf course and then to the coast.

- Runway 26 – Straight out to over the water left turn into the TFR.
4. Arrival Procedures
 - There will be a minimum of one hour between scheduled arrivals.
 - The route back into the San Juan FIR from adjacent FIR areas shall be a reverse of the outbound route detailed above at last assigned ATC altitude.
 - Runway 26 - The Predator will follow the same path as the runway 8 departure procedures.
 - Runway 8 – Straight in approach.
 5. 99.7 Special Security Instruction –
 - Location - A 99.7 SSI will be established centered on 18° 25' 30" N 67° 16' 30" W (see attachment 2) with a 3 NM radius from 3,000' to 18,000'.
 - The 99.7 will remain in place during the entire duration of Predator operations.
 - The ATO UAS Office will handle the coordination for the scheduling of the 99.7 and the associated 99.7 NOTAM. This does not take the place of the requirement listed below for the proponent to file the operational NOTAM.
 6. The pilot in command must receive a briefing on the airport, and the limitations of this airport, and must know all of the available information concerning this airport.
 7. The pilot in command must develop contingencies in the event of an engine failure or lost link when departing or arriving TJBQ.
 8. Before the Predator reaches 3,000 feet MSL on departure the MCE must be in control of the UA. On arrival, the transfer to the LRE can not be accomplished before the Predator reaches 3,000 feet MSL. The intent of these provisions is to ensure that the radio communications are being relayed through the UA at all times the UA is under the control of San Juan CERAP.
 9. Coordination
 - The proponent will provide the Rafael Hernandez ATCT and San Juan CERAP a copy of the flight schedule at least 24 hours in advance.
 - The proponent is responsible for filing their flight plan at least 8 hours in advance.
 10. In the event of a lost link, the UAS pilot will immediately notify appropriate facility based on current operating airspace (see POC list in Special Provision 11), state pilot intentions, and comply with the following provisions:
 - On Departure –
 - Runway 8, the lost link flight path must follow the same flight path as a runway 8 departure and cannot initiate a turn to the TFR (lost link loiter point) until established off the coastline. Continue until established off the coastline, climbing to 3,000 feet MSL. Once the UA is within the geographical confines of the TFR the UA will follow the procedures listed below for "Within Predator 99.7" lost link.
 - For runway 26, the lost link flight path must continue straight out and cannot initiate a turn to the TFR (lost link loiter point) until established off the coastline. Continue until established off the coastline, climbing to 3,000 feet MSL. Once the UA is within the geographical confines of the TFR the UA will follow the procedures listed below for "Within Predator 99.7" lost link.

- Within Predator 99.7 – The UA will remain within the geographical confines of the TFR at last assigned altitude, until approximately 2 hours before fuel exhaustion. Then proceed to the termination orbit point at last assigned altitude. Once at the termination orbit point the UA will descend to FL190.
- Outside of Predator 99.7, but within San Juan Designated Airspace –
 - Outbound from TJBQ - The UA will proceed to the next waypoint and reverse course at the last assigned altitude. Then the UA will then proceed via the waypoint routing at last assigned altitude to the TFR. Once the UA is within the geographical confines of the TFR the UA will follow the procedures listed above for “Within Predator 99.7” lost link.
 - Inbound to TJBQ - The UA will proceed on course via the waypoint routing at last assigned altitude to the TFR. Once the UA is within the geographical confines of the TFR the UA will follow the procedures listed above for “Within Predator 99.7” lost link.
- Outside of San Juan FIR –
 - Outbound from TJBQ - The UA will proceed to the next waypoint and reverse course at the last assigned altitude. Then the UA will proceed via the waypoint routing at last assigned altitude to the TFR. Once the UA is within the geographical confines of the TFR the UA will follow the procedures listed above for “Within Predator 99.7” lost link.
 - Inbound to TJBQ - The UA will proceed on course via the waypoint routing at last assigned altitude to the TFR. Once the UA is within the geographical confines of the TFR the UA will follow the procedures listed above for “Within Predator 99.7” lost link.

11. Point of Contact List

FAA

San Juan CERAP			
	Watch Desk		787-253-8664/8665
Rafael Hernandez ATCT			
	Facility Phone		787-890-6115
	Manager		787-689-1940
FAA Air Traffic Organization UAS Office			
Ms Ardy Williams	Manager	Ardyth.Williams@faa.gov	202-497-7688
Ms Debra Trindle	Air Traffic Specialist	Debra.Trindle@faa.gov	310-350-6214

Mr John Page	Air Traffic Specialist	John.Page@faa.gov	202-329-5271
Mr Steven Brown	Airspace Specialist, Eastern Service Area	Steven.Brown@faa.gov	404-305-5611
FAA Unmanned Aircraft Program Office			
Mr Rick Prosek	Manager	Richard.Prosek@faa.gov	703-887-4516
Mr Marcello Mirabelli	Aviation Safety Inspector	Marcello.Mirabelli@faa.gov	202-385-4610
Ms Jean Hardy	Aviation Safety Inspector	Jean.Hardy@faa.gov	202-385-4829

JFACC

(b) (6)	(b) (6)	(b) (6), Airspace (601st LNO)	(b) (6)
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612 Air Operations Center

(b) (6)	(b) (6), Chief, Plans Division	(b) (6)	(b) (6)
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Ground Control Station			TBD
Pilot in Command			TBD

NOTAM: A distance (D) Notice to Airman shall be issued when UA operations are being conducted. This requirement may be accomplished through your local base operations or NOTAM issuing authority. You may also complete this requirement by contacting Flight Service Station at 1-877-4-US-NTMS (1-877-487-6867) not more than 72 hours in advance, but not less than 48 hours prior to the operation and provide:

- Name and Address of pilot filing NOTAM request
- Location, Altitude or the operating Area
- Time and nature of the activity

NOTE FOR PROPONENTS FILING THEIR NOTAM WITH DoD ONLY: This requirement to file with the AFSS is in addition to any local procedures/requirements for filing through DINS.

Incident / Accident and Normal Reporting Provisions: The following information is required to document routine and unusual occurrences associated with UAS activities in the NAS.

- The proponent for the COA shall provide the following information to Richard.Prosek@faa.gov on a monthly basis:
 - Number of flights conducted under this COA.
 - Pilot duty time per flight.
 - Unusual equipment malfunctions (hardware/software).

- Deviations from ATC instructions.
- Operational/coordination issues.
- All periods of loss of link (telemetry, command and/or control)
- The following shall be submitted via phone or email to Richard.Prosek@faa.gov (703)-887-4516 and Ardyth.Williams@faa.gov (202) 497-7688 **within 24 hours and prior to any additional flight under this COA:**
 - All accidents or incidents involving UAS activities, including lost link.
 - Deviations from any provision contained in the COA.

This COA does not, in itself, waive any Federal Aviation Regulation (FAR) nor any state law or local ordinance. Should the proposed operation conflict with any state law or local ordinance, or require permission of local authorities or property owners, it is the responsibility of the Joint Forces Air Component Commander to resolve the matter. This COA does not authorize flight within Special Use Airspace without approval from the Using Agency. The Joint Forces Air Component Commander is hereby authorized to operate the MQ-1 (Predator-A) Unmanned Aircraft System UAS in the operations area depicted in "Activity" above and attachment 1 and 2 below.

