



DEPARTMENT OF THE ARMY  
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND  
AVIATION AND MISSILE RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER  
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REDSTONE ARSENAL, ALABAMA 35898-5000

RDMR-AEV

15 Feb 11

AWR RQ-11B20110215

MEMORANDUM FOR Project Manager, Unmanned Aircraft Systems (SFAE-AV-UAS),  
Redstone Arsenal, AL 35898-5000

SUBJECT: Airworthiness Release (AWR) for Operation of Raven Unmanned Aircraft System (UAS) (AWR RQ-11B20100214) (TN 93748).

1. Scope: This memorandum constitutes an Airworthiness Release Qualification Level 3 authorizing operation of Raven Unmanned Aircraft Systems in class G and E airspace within the Certificate of Authorization (COA) airspace near Ravenna, OH.

2. Validity: This AWR is new and terminates 15 Feb 13, upon changes in configuration of the subject equipment, or upon issuance of a later AWR, whichever occurs first. This AWR is valid only for operations in class G and E airspace within the COA airspace near Ravenna, OH.

3. List of Appendices:

Appendix A - Restrictions and Operating Information  
Appendix B - Configuration and Installation Detail  
Appendix C - Inspections, Maintenance, and Logbook Instructions  
Appendix D - References List

4. The point of contact (POC) is (b) (6), commercial (256) 876-2864 or e-mail: (b) (6), or (b) (6), commercial (256) 313-6456, or e-mail: (b) (6)

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**Appendix A – Restrictions and Operating Information:**

**WARNING**

The air vehicle is susceptible to radiated emissions. Loss of link, loss of GPS, loss of video, and possible loss of vehicle control are likely in proximity to emitters. Operators shall avoid known high intensity Electromagnetic Interference (EMI) areas.

**WARNING**

The Raven UAS has not completed full airworthiness qualification. All flight operations shall be conducted in a manner to minimize exposure to manned aircraft and populated ground areas.

**WARNING**

The Raven UAS does not have a sense and avoid system. Mid-air collision is a risk. All flight operations shall be conducted to ensure that manned and unmanned aircraft shall maintain proper separation.

**WARNING**

Accidental operation of the Raven UAS outside of the COA area shall be immediately reported to Air Traffic Control (ATC) / Range Control. The operator shall make immediate actions to correct the flight path and/or follow ATC/Range Control direction.

**WARNING**

The Raven UAS has not undergone SOF Explosive Atmosphere testing. A serious fire or explosion may result if the aircraft is powered while flammable vapors are present during ground or flight operations. Do not operate the system in the presence of flammable vapors.

**WARNING**

The operator must coordinate frequencies with any other Raven operators in the area IAW the operator's manual and Local Spectrum Manager procedures. Failure to coordinate frequencies with other users could result in loss of vehicle control and possible loss of the air vehicle.

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**CAUTION**

The RQ-11 Unmanned Aircraft System is capable of causing hearing damage within 8.5 feet of the aircraft. It is recommended that personnel within this range wear appropriate hearing protection.

**NOTE**

Raven Unmanned Aircraft Systems are not compatible across variant designations. Refer to the manual issued with the system to determine system variant and compatibility.

1. The aircraft operating instructions, procedures, and limitations shall be in accordance with references D-1 through D-2 through D-4 (as applicable by system) and this AWR. In the event of conflict between these documents, the information in this AWR shall prevail.
2. Flights shall avoid other Raven transmitters by at least 200 meters. Ground control stations shall be located at least 400 meters apart.
3. Emergency procedures: IAW the operator's manual.
4. The Rally waypoint shall be over an approved Autoland point.
5. Flight of the Raven UAS is restricted to Visual Meteorological Conditions (VMC).
6. Flight over populated areas shall be avoided.
7. All flight operations outside of the restricted airspace and COA area is prohibited.
8. Visual contact with Raven must be maintained while the aircraft is in the COA area.
9. Commander's Corner:
  - a. The Raven Unmanned Aircraft Systems (UASs) have not completed the full airworthiness qualification process. An AWR has been granted through a Level 3 Airworthiness evaluation. A Level 3 AWR establishes a minimum level of safety for UAS operations. Strict adherence to the Operator's Manual, local Standard Operating Procedures for UAS, and this AWR is required to reduce the risk of loss of the aircraft, property damage and personal injury.
  - b. Coordination of channel selection with other systems operating in the area is critical to reducing accident rates.

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**Appendix B – Configuration and Installation Detail:**

1. Configuration details, other specific equipment, and drawings: The Raven Unmanned Aircraft System is defined in reference D-1.
2. Special installation instructions: NONE.
3. Installation verification and quality checks: NONE.

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**Appendix C – Inspections, Maintenance, and Logbook Instructions:**

1. Conduct inspections and maintenance as specified in reference D-1 through D-2 and D-3.

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**Appendix D – References:**

1. Technical Manual SOFFW1-08-COPM-00090-00, 50336\_A, Small Unmanned Aircraft System (SUAS), All-Environment Capable Variant (AECV), Raven All Environment (AE), Operator's Manual, dated 28 April 2009, with latest updates.
2. Technical Manual SOFFW1-08-GCHK-00940-00, Small Unmanned Aircraft System (SUAS), All-Environment Capable Variant (AECV), Raven All Environment (AE), Checklist, dated April 2009, with latest updates.
3. CRJMTTC Raven SOP, Unmanned Aerial Systems (UAS) Operations, dated January 2011.