



DEPARTMENT OF THE ARMY  
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND  
AVIATION AND MISSILE RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER  
5400 FOWLER RD  
REDSTONE ARSENAL, AL 35898-5000

REPLY TO  
ATTENTION OF

AMSRD-AMR-AE-B-U

21 AUG 2006

MEMORANDUM FOR U. S. ARMY, Night Vision and Electronics Sensors Directorate,  
(NVESD) Mr Frank Herbst, Project Manager, BUSTER UAV  
Operations, Fort Belvoir, VA 22060-5806

SUBJECT: Airworthiness Release (AWR) for Operation of BUSTER Unmanned Aircraft  
System (UAS), TN (34501), AWR (BUSTER20060821)

1. Scope: This memorandum constitutes Airworthiness Release Qualification Level 3 authorizing operation of the BUSTER Unmanned Aircraft System within active restricted airspace and within the Federal Aviation Authority (FAA) approved Certificate of Authorization (COA) area at HONDO, TX.
2. Validity: This AWR is new and terminates 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 within active restricted airspace and within the Federal Aviation Authority (FAA) approved Certificate of Authorization (COA) area at HONDO, TX.
3. Appendices: This memorandum and appendix A shall be carried in the logbook and a complete AWR copy with all appendices kept in the aircraft historical record file.  
Appendix A - Restrictions and Operating Information  
Appendix B - Configuration and Installation Detail  
Appendix C - Inspections, Maintenance, and Logbook Instructions  
Appendix D - Reference List
4. The point of contact (POC) is (b) (6) commercial (256) 895-3403, FAX (256) 895-4141, or E-mail: (b) (6) @us.army.mil.

(b) (6)

for  
Director of Aviation Engineering

SUBJECT: Airworthiness Release (AWR) Qualification Level III for Operation BUSTER Unmanned Aircraft System (UAS) (TTS 34501), (AWR BUSTER20060821)

## **Appendix A - Restrictions and Operating Information**

### **WARNING**

The BUSTER 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 BUSTER UAS has not undergone complete Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) testing. Flight into high intensity EMI areas may result in loss of control of aircraft. Operators shall avoid known high intensity EMI areas.

### **WARNING**

The BUSTER UAS has not undergone SOF Explosive Atmosphere Testing, a serious fire or explosion may result if the aircraft is powered in the presence of flammable vapors during ground or flight operations. The precautions in paragraph 3 of this appendix A shall be observed in order to ensure safe flight.

### **WARNING**

The BUSTER 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 not occupy the same airspace.

### **WARNING**

The BUSTER UAS will rely on ground observers to provide airspace de-confliction. If radio contact between the ground observers and the Ground Control Station (GCS) operator is lost; the GCS operator shall return the aircraft to the return home waypoint/return to base (RTB) and loiter until communications are re-established.

### **CAUTION**

Noise characterization testing has not been completed on this system. Prolonged exposure to engine noise at close proximity may contribute to hearing loss. It is recommended that ear plugs be worn while launching/recovering the air vehicle.

SUBJECT: Airworthiness Release (AWR) Qualification Level III for Operation BUSTER Unmanned Aircraft System (UAS) (TTS 34501), (AWR BUSTER20060821)

**CAUTION**

Maximum wind speed for flight is 30 knots. Launch should not be attempted if crosswind component exceeds 15 knots.

**CAUTION**

Buster UAS is not cleared for launch in the rain or in icing conditions.

1. The aircraft operating instructions, procedures, and limitations shall be in accordance with the references 1, 2, 3, 4 and this AWR. In the event of conflict between these documents, the information in this AWR shall prevail.
2. Flight of the BUSTER UAS is restricted to Visual Flight Rules (VFR), Visual Meteorological Conditions (VMC), and 800 feet maximum AGL and 1 mile maximum distance from GCS operator and within area described in approved FAA COA.
3. Due to lack of SOF Explosive Atmosphere testing, the following precautions shall be observed in order to ensure safe flight:
  - a. The aircraft shall be un-powered and properly grounded during refueling operations IAW reference 2.
  - b. While on the ground the aircraft shall maintain the greatest distance practical from all other aircraft and fuel depots, while achieving mission objectives.
4. Data link frequencies shall be de-conflicted through local frequency controller.
5. The auto return home/return to base (RTB) function acts immediately when data link is lost. AV shall be monitored constantly by the GCS operator during all aspects of the flight operations.
6. The return home/loiter waypoint/RTB shall be inside proposed HONDO, TX. airspace as described in approved FAA COA over an approved impact area.
7. With each installation of a new or different test package the Center of Gravity (CG) shall be calculated and maintained within limits.
8. Ground observers shall maintain positive visual contact with the BUSTER at all times.
9. Flight over populated areas is prohibited.

SUBJECT: Airworthiness Release (AWR) Qualification Level III for Operation BUSTER Unmanned Aircraft System (UAS) (TTS 34501), (AWR BUSTER20060821)

10. All UAS flight operations, to include planned flight profiles, shall be coordinated with HONDO, TX. Airfield and by the use of NOTAMS to ensure that the BUSTER UAS remains on the ground or return to base (RTB) if any other non co-operative aircraft enters the proposed HONDO, TX. airspace as described in approved FAA COA.

11. During preflight someone other than the operator shall verify that the return home waypoint is entered correctly.

12. As a minimum there shall be a crew consisting of a qualified BUSTER GCS Operator, Ground Launch Operator and minimum of 4 other ground observers stationed around the perimeter of the planned flight area. All observers shall maintain radio contact with the GCS operator throughout the flights.

13. HONDO, TX. Airfield shall be briefed before each flight with expected mission duration to aid in deconfliction.

14. Verified, complete and non-recoverable loss of any AV or Ground Control Station (GCS) flight critical sub-system shall require RTB. Degraded flight is not authorized.

15. With any unexplained anomaly the GCS operator shall initiate return to base (RTB).

16. Commander's Corner:

The BUSTER Unmanned Aircraft Systems (UAS) have not completed full airworthiness qualification testing. Strict adherence to the Operators Manuals and this AWR will minimize the hazards of operation.

SUBJECT: Airworthiness Release (AWR) Qualification Level III for Operation BUSTER Unmanned Aircraft System (UAS) (TTS 34501), (AWR BUSTER20060821)

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

1. Configuration- This aircraft is a production configuration BUSTER UAS as identified in references 1, 2, 3, and 4.

SUBJECT: Airworthiness Release (AWR) Qualification Level III for Operation BUSTER Unmanned Aircraft System (UAS) (TTS 34501), (AWR BUSTER20060821)

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

1. In the event any operating limit, or limits established by this release, is exceeded in addition to the normal entry on DA Form 2408-13, appropriate inspections shall be performed prior to next flight.

2. Aircraft Logbook Entries:

a. In accordance with Department of the Army (DA) Pamphlet 738-751, the following entries shall be made on the DA Form 2408-13-1 and shall be perpetrated on each form during the period of installation, until superseded by another AWR, or until reason for limitation is removed.

(1) Place a circled "X" on the form IAW DA Pamphlet 738-751. In the Fault Information Block, make the following entry: "Operate within limitations and restrictions specified in the enclosed airworthiness release dated YY AUG 2006."

(2) A weight and balance form DD365 shall be maintained on file in each aircraft's log book and weight and balance book maintained by the operational unit.

SUBJECT: Airworthiness Release (AWR) Qualification Level III for Operation BUSTER Unmanned Aircraft System (UAS) (TTS 34501), (AWR BUSTER20060821)

**Appendix D - Reference List:**

1. The BUSTER Miniature Unmanned Air Vehicle System 1-1001 Skill Qualification and Certification Test Manual (21 APR 2004)
2. The BUSTER Miniature Unmanned Air Vehicle System 1-1003 Operator's Manual overview and deployment (1 JUL 2006)
3. The BUSTER Miniature Unmanned Air Vehicle System 1-1003 Operator's Manual ground station operation (1 MAR 2006)
4. The BUSTER Miniature Unmanned Air Vehicle System Flight Operations Checklist (14 AUG 2006)