



U.S. Department
of Transportation
**Federal Aviation
Administration**

Small Airplane Directorate
Atlanta Aircraft Certification Office
1701 Columbia Ave.
College Park, Georgia 30337

JAN 31 2013

Mr. Michael Greene, PhD
Chairman and CEO
Archangel Systems, Inc.
1635 Pumphrey Ave.
Auburn, AL 36832

Dear Mr. Greene;

This is in reply to your October 31, 2012 and January 29, 2013 letters requesting TSO Authorization for your Attitude Heading Reference System (AHRS) AHR50 module, which is **intended to be integrated inside a higher assembly system and provide that system with the AHRS functionality, while the higher system enclosure provide the AHR50 with conditioned power and EMI protection, as indicated in the Installation and Limitations Document MIP-AHR50.**

We accept your statement certifying that your article meets the requirements of TSO-C4c, TSO-C6e, RTCA DO-178B Level A category, and that you meet the requirements of Title 14 Code of Federal Regulations part 21 subpart O. Effective this date, we authorize you to identify the AHR50 AHRS module with the marking requirements defined in 14 CFR 45.15(b) and in TSO-C4c and TSO-C6e.

Description:	Attitude Heading Reference System Module
Hardware Part Number:	AHR50, Revision IR
Software Part Number:	AHR50, Revision 1.0

We consider your quality system, as defined in your quality control manual 421-F-001, Revision E, dated December 22, 2010 satisfactory for production of this article at your 1635 Pumphrey Ave, Auburn, Alabama facility.

The following data will be retained on file for this authorization:

- a) Plan for TSO Authorization Document TSOP-AHR50, Revision C, Dated January 29, 2013.

- b) Plan for Software Aspects of Certification Document PSAC-AHR50, Revision A, Dated August 15, 2012.
- c) Software Configuration Index Document SCI-AHR50, Revision SW Release 1.0, Dated November 1, 2012.
- d) Software Accomplishment Summary Document SAS-AHR50, Revision IR, Dated October 31, 2012.
- e) Interface Control Document ICD-AHR50, Revision C, Dated October 15, 2012.
- f) Environmental Qualification Form 630-F-003, Revision IR, Dated November 8, 2012.
- g) Installation and Limitations Document MIP-AHR50, Revision B, Dated November 15, 2012.
- h) Master Drawing Package Drawing (Include Master Drawing List and Assembly Drawings) MDP-AHR50, Revision B, Dated January 29, 2013.
- i) TSO ID Tag Label Drawing (extracted from the Master Drawing Package Drawing) ID-50-1, Revision B, Dated January 28, 2013.
- j) Component Maintenance Manual 422-Q-004, Revision IR, Dated October 31, 2012.
- k) Environmental Test Procedures and Results (Temperature and Altitude) ETPR-4-5-AHR50, Revision IR, Dated October 1, 2012.
- l) Environmental Test Procedures and Results (Humidity) ETPR-6-AHR50, Revision IR, Dated October 1, 2012.
- m) Environmental Test Report (Humidity) "US Tech" 12-0337, Dated September 13, 2012.
- n) Environmental Test Procedures and Results (Operational Shock and Crash Safety) ETPR-7-AHR50, Revision IR, Dated October 1, 2012.
- o) Environmental Test Procedures and Results (Vibration) ETPR-8-AHR50, Revision IR, Dated October 1, 2012.

This TSO authorization, issued under 14 CFR 21.611, is effective until surrendered, withdrawn or otherwise terminated under the provisions of 14 CFR 21.613. With notice, we may withdraw this TSO authorization if articles are not in compliance with the applicable TSO performance standards per 14 CFR 21.2.

You must obtain FAA approval prior to making any changes to the location of your manufacturing facilities pursuant to 14 CFR 21.609(b).

Without further FAA approval, we do not allow manufacturers to mark articles after they change their company's name, address, or ownership. You must notify the ACO and MIDO of name, address, or proposed ownership changes.

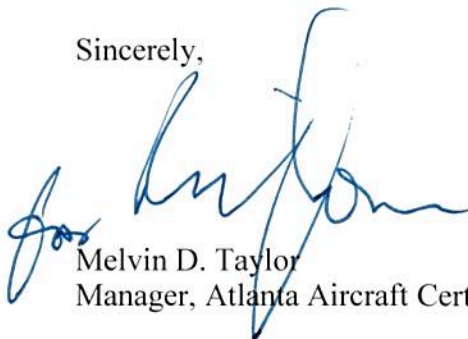
Per 14 CFR 21.614, a holder of a TSOA may not transfer it. If you wish to transfer it, you must request a transfer from the FAA.

Send to the office below any design change(s) for this TSO article as outlined in 14 CFR 21.619(a). **You should notify us of minor design changes within 6 month.** Also, as recipient of this authorization, we require you to report any failure, malfunction, or defect relating to articles produced under this authorization in accordance with the provisions of 14 CFR 21.3.

Please note that technical data the FAA retains may be subject to Freedom of Information Act (FOIA) requests. This office will notify you of any request(s) pertaining to your data and give you the opportunity to protect the data from public disclosure.

If you have any questions regarding this authorization, contact Mr. Ned Teeny P.E. at (404) 474-5577 or ned.teeny@faa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Melvin D. Taylor', is written over the typed name and title.

Melvin D. Taylor
Manager, Atlanta Aircraft Certification Office

cc: AIR-112
ACE-118A (C. Clarke)
ATL MIDO (N. Barrett)