



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

Aircraft Certification Service
Compliance & Airworthiness Division

Chicago ACO Branch
2300 East Devon Avenue
Des Plaines, IL 60018

November 20, 2019

Mr. Vernon Miller
Sr. Certification Specialist
Appareo Systems, LLC
1810 NDSU Research Circle North
Fargo, ND 58102

Dear Mr. Miller:

This letter is to correct the Installation Instructions revision level provided in our letter dated November 5, 2019. The rest of the letter remains unchanged.

This is response to your letter dated October 16, 2019, which submitted data to support a minor change to the Technical Standard Order (TSO) authorization for your Stratus ESG System to add a back plane assembly and rack for rotorcraft installations. The TSOA table has been updated below to incorporate the new part numbers (and update the software and AEH revisions to reflect our letter from March 23, 2018). The remainder of the letter remains unchanged.

This is in reply to your letter of June 21, 2016, requesting Technical Standard Order (TSO) authorization for the Stratus ESG System. We accept your statement certifying that your article meets the requirements of TSO-C112e, TSO-C145d, and TSO-C166b and that you meet the requirements of Title 14 Code of Federal Regulations Part 21 Subpart O. We also accept the data you submitted in support of the non-TSO function for the VFR key as identified in Section 1.4 of the Stratus ES/ESG Installation Instructions, Document No. 600840-000031, Rev. 3.0, dated October 3, 2019, on a non-interference basis.

Effective this date, we authorize you to identify the following items with the marking requirements defined in 14 CFR 45.15(b) and in TSO-C112e, TSO-C145d, and TSO-C166b:

Description	Part Number	Software/AEH Version:
Stratus ESG Transponder	153510-000017	SW: 501010-000113 R07 AEH: 501010-000109 R05
Back Plate Assembly	153510-000015	N/A
Stratus ESG Rack	153540-000027	N/A
Stratus ESG Rack, Rotorcraft	353070-000368	N/A
Back Plate Assembly, Rotorcraft	353070-000369	N/A

We consider your quality system, as defined in the Appareo Systems' Quality Systems Policy Manual, 606568-000001, Rev. 3.0, dated March 15, 2016, satisfactory for production of these articles at your Fargo, ND facility.

Appareo Systems must furnish the following statement to the original owner or installer of each article (or multiple articles if furnished to one source):

The conditions and tests required for TSO approval of this article are minimum performance standards. Those installing this article either on or within a specific type or class of aircraft must determine that the aircraft installation conditions are within the TSO standards which include any accepted integrated non-TSO functions. TSO articles and any accepted integrated non-TSO function(s) must have separate approval for installation in an aircraft. The article may be installed only according to 14 CFR part 43 or the applicable airworthiness requirements.

You requested authorization to deviate from TSO-C145d to use RTCA DO-160G Environmental Conditions and Test Procedures for Airborne Equipment. This is a later version of the standard identified in the TSO and is approved by the Chicago ACO.

This TSO authorization, issued pursuant to 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 in accordance with your agreement with this office. 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 Aaron Foutch at (847) 294-7124, fax (847) 294-7834, or email aaron.foutch@faa.gov

Sincerely,

A handwritten signature in black ink, appearing to read "Steven L. Lardinois". The signature is fluid and cursive, with a prominent initial "S" and a long, sweeping underline.

Steven L. Lardinois
Manager, Systems Section
Chicago ACO Branch