



DEPARTMENT OF THE ARMY
U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND
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FCDD-AMR-AB

3 October 2024

MEMORANDUM FOR Program Manager Air Warrior, SFAE-SDR-AW

SUBJECT: PHODS OPC-M2 EMI Test Report (TN 265069)

1. References:

- a. D.L.S. Electronic Systems, Inc., test report (OPC-M2 Electromagnetic Interference (EMI) Test Report, 28380 Rev A), 15 July 2024.
- b. DEVCOM AvMC SRD, FCDD-AMR memorandum (Airworthiness Requirements for the PHODS Oxygen Pulse Controller OPC-M2, TN 248330), 10 May 2023.
- c. D.L.S. Electronic Systems, Inc., PDF (PHODS - EMI TESTING: MIL-STD-461G), 12 September 2023.
- d. DEVCOM AMSRD-AMR-AE-BG memorandum (Airworthiness Requirements for the Aqua Lung Portable Helicopter Oxygen Delivery System (PHODS), TN 32468), 22 August 2006.

2. Status: Disapproved

3. Airworthiness Comments:

a. Reference 1.a. test report does not meet the airworthiness requirements of reference 1.b AQP paragraph 3.b. EMI RS103. The following comments shall be adequately addresses prior to obtaining airworthiness approval:

1) The test results in reference 1.a. indicate various failures with respect to the applicable limit line for RS103 testing. Passing RS103 is required for Safety of Flight. Until the requirement is adequately addressed through a successful retest or risk assessment, an AWR will not be provided.

2) RS103 testing was limited from 2 MHz - 10000 MHz. The MIL-STD-461G requirement is up to 40 GHz and is indicated as such in the Appendix A test plan. No explanation is given for not testing to the full requirement. Testing was limited to 200 V/m. The default modulation of MIL-STD-461G was used. This item is considered Safety Critical (SC) due to the danger of hypoxia. Testing shall be conducted using the modulations and to the full levels of the AMACC, Table 1 (ADS-37A-PRF, Table I, parts A and B).

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3) RS103 showed a failure in which power had to be cycled to get the system operational again. Is there an indication to personnel that this is required without the person monitoring the PHOD? Also, oxygen flow was seen to deviate from typical values. This is unacceptable as the PHOD is considered SC.

b. Reference 1.a. test report meets the airworthiness requirements of reference 1.b AQP paragraph 3.b. EMI RE102.

4. General Comments:

a. It is not understood why RE102 is listed as failing. The anomalies in reference 1.c. are indicative of system issues as RE102 only measures what the system is emitting. The system is not exposed to RF, so these failures are system operational issues and are not related to RE102.

b. SRD recommends contacting the device manufacturer to discuss the test results and a path forward so that retesting of the device passes with satisfactory results.

c. As a side note, the device failed CS118 testing.

5. The POC is Mr. Colton Nall, colton.b.nall.civ@army.mil. Alternate is Mr. Brian Kolowski (Contractor, Intuitive Research and Technology Corporation), brian.l.kolowski.ctr@army.mil.

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