U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

2703 Martin Luther King Jr. Ave. SE
Washington, DC 20593-7509
Staff Symbol: CG-OES
Phone: 202-372-1433
Fax: 202-372-8382
Email: environmental_standards@uscg.mil

16714
April 22, 2019

[redacted]

Subj: RESONANCE SEARCH FREQUENCY FOR BALLAST WATER MANAGEMENT SYSTEM (BWMS) COMPONENT TESTING

Ref: (a) Title 46 Code of Federal Regulations, Part 162.060-30 "Testing requirements for BWMS components"
(b) International Electrotechnical Commission, IEC 60945, dtd 2002 "Maritime Navigation and Radiocommunication Equipment and Systems - General Requirements - Methods of Testing and Required Test Results"
(c) International Electrotechnical Commission, IEC 60092-504 "Electrical installations in ships – Part 504: Special features – Control and instrumentation."

Dear [redacted]

We received your email dated April 4, 2018 requesting that the Coast Guard evaluate the regulation noted in paragraph (a)(1) of reference (a), which requires BWMS components to be tested for resonance at oscillation frequencies from 2 to 13.3 Hz. After reviewing the references from which this resonance search was based, and requirements for similar systems, I have determined that the 2 Hz lower limit should be interpreted as having an allowable variation of up to 3 Hz (2-5 Hz) provided the search is begun at lowest frequency possible and technical justification is provided to the satisfaction of the Coast Guard accepted Independent Lab.

The requirement to test for resonance frequencies down to 2 Hz was based on testing protocol similar to Section 8.7 of reference (b), which does not allow flexibility in the range of testing. That protocol was also adopted in other Coast Guard Type Approval regulations such as 46CFR162.050 "Pollution Prevention Equipment," as well as Paragraph 3.2.2.1 of IMO Resolution MEPC.107 (49) in July of 2003.

Following receipt of your request, my office reviewed information from a number of sources in consultation with the Marine Safety Center (MSC) and the Commandants Office of Design Standards. The flexibility to begin resonance searches between 2-5 Hz is supported by equipment limitations common throughout industry, and has been adopted by similar domestic and international standards based on the integrity of the data able to be provided from that equipment limitation. Of particular note, reference (c) from both 2001 and 2016 editions list a starting range of 2-5 Hz for component testing of control and instrumentation systems, and is the testing standard required by the CFR for several vital systems such as fire detection equipment.

For the reasons noted above, Independent Laboratories submitting test reports required by 46CFR162.060-34 to the MSC should make note of any testing that did not include a resonance search down to 2 Hz, determine the acceptability of the test, and provide a statement as to the justification for the limitation. Justification should be based on a technical evaluation of the available data, not on dictated protocol of the facility.

By copy of this letter, I am informing the BWMS Type Approval Office of the proper interpretation of this requirement. If you have any questions regarding this letter, please contact me.

Sincerely,

S. T. BRADY
Captain, U.S. Coast Guard
Office of Operating and Environmental Standards

Copy: Commanding Officer, Coast Guard Marine Safety Center
Commandant, Office of Design and Engineering Standards