International Standard

ISO 4678

Ships and marine technology — Noise measurement method for HVAC system in accommodation spaces

Navires et technologie maritime — Méthode pour le mesurage du bruit du système CVCA dans les locaux

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Foreword

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Introduction

Heating, ventilation and air conditioning (HVAC) is one of the most serious noise sources, especially for ship accommodation spaces that are far from the machinery spaces. This noise source affects the habitability comfort of crews and passengers on a ship. Although some standards exist for measuring noise on board vessels, for example ISO 2923, no special attention has been paid to measure noise arising from the HVAC. Other standards such as ISO 3740 are more accurate for quantifying measurement of a noise source. However, the methods specified in other standards require more measurement instruments, are more time-consuming than the method presented in this document and are difficult to use in the noise measurement of HVAC system onboard ships, which has many outlets distributed in hundreds of cabins.

This document specifies a method of noise measurement of HVAC systems in ship accommodation spaces by placing three microphones around the vent outlets to reduce airflow interference and space inhomogeneity, and by correcting the noise result by measuring the reverberation time of the cabin. The noise measurement method for the HVAC system is a compromise, which is more precise, but less laborious, compared to the previous methods.

The measurement should be performed for ship accommodation spaces, where noise exceeds the required limits according to existing regulations. The measurement and analysis results could be used to detect the causes of the higher noise level of the HVAC system, further enabling objective measures to be taken to mitigate these causes.