

## The Effect of Damping Treatment for Noise Control on Offshore Platforms Using Statistical Energy Analysis

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**Abstract :** Structure-borne noise is an important aspect of offshore platform sound field. It can be generated either directly by vibrating machineries induced mechanical force, indirectly by the excitation of structure or excitation by incident airborne noise. Therefore, limiting of the transmission of vibration energy throughout the offshore platform is the key to control the structure-borne noise. This is usually done by introducing damping treatment to the steel structures. Two types of damping treatment using on-board are presented. By conducting a statistical energy analysis (SEA) simulation on a jack-up rig, the noise level in the source room, the neighboring rooms, and remote living quarter cabins are compared before and after the damping treatments been applied. The results demonstrated that, in the source neighboring room and living quarter area, there is a significant noise reduction with the damping treatment applied, whereas in the source room where air-borne sound predominates that of structure-borne sound, the impact is not obvious. The subsequent optimization design of damping treatment in the offshore platform can be made which enable acoustic professionals to implement noise control during the design stage for offshore crews' hearing protection and habitant comfortability.

**Keywords :** statistical energy analysis, damping treatment, noise control, offshore platform

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