Air Isolation Performance Data
Measured On-board Motor-Yacht xxx

DEICON, Inc.

To substantially lower the vibration transmitted from one of the diesel generators to the M/Y xxx (the name not mentioned at the owner's request), the elastomeric mounts on the star-board diesel-generator was replaced with DEICON's Air Isolation System. The attachment of the exhaust pipe to the engine, as well as its mounting to the engine room wall (exhaust hangers) were modified to allow for the added motion of the machine during the start up and shut down. Moreover, precautions were exercised to prevent the unwanted motion of the machine due to possible shock disturbances to the generator.

In addition to the subjective evaluation manifested by extreme satisfaction of the owner, captain and the chief engineer not experiencing any vibration, the performance of the mounted system was objectively evaluated by measuring the level of vibration, at various locations on the vessel, before and after the retrofit. The plots presented in the following pages are the power spectral density (PSD)[1] of the measured accelerations at different locations. The measurements were done while the star-board diesel generator, running at 1500 rpm under the normal docking load, was mounted on a) its original elastomeric mounts in the 'before' measurements and b) on DEICON's air isolation system in the 'after' measurements. The measurement locations are described in the caption of each plot.

Each plot contains two traces of 'before' and 'after' measurements, distinguished from each other by color; blue indicates the 'before' measurements and red indicates the 'after' measurements. It should be noted that the 'before' and 'after' measurements are done within a time span of 7 months while the yacht was at a marina in Fort Lauderdale, FL.

Clear from these plots, DEICON's air isolation system has caused drastic abatement in the vibration transmitted from the star-board diesel generator to the yacht.

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[1] Considering that our intention for these measurements has been the comparison of 'before' and 'after' vibrations, choice of the quantity measured, e.g., the PSD of acceleration, is inconsequential. If the reader desires to convert PSD to the time history amplitude, the following procedure needs to be followed: The magnitude of the PSD at any frequency can be correlated to the amplitude of the time history, corresponding to that frequency, by taking the square root of the quantity *PSD_mag***dF***WindowScale*, where *PSD_mag* is the magnitude of the PSD at the frequency of interest, *dF* is FFT resolution, i.e., *frequency_span*/(*number of lines*), and *WindowScale* is a scaling factor for the window used (for Hanning window *WindowScale*=1.5). Moreover, vibration velocity can be derived by dividing the acceleration amplitude corresponding to a certain frequency by that frequency in radians/sec.

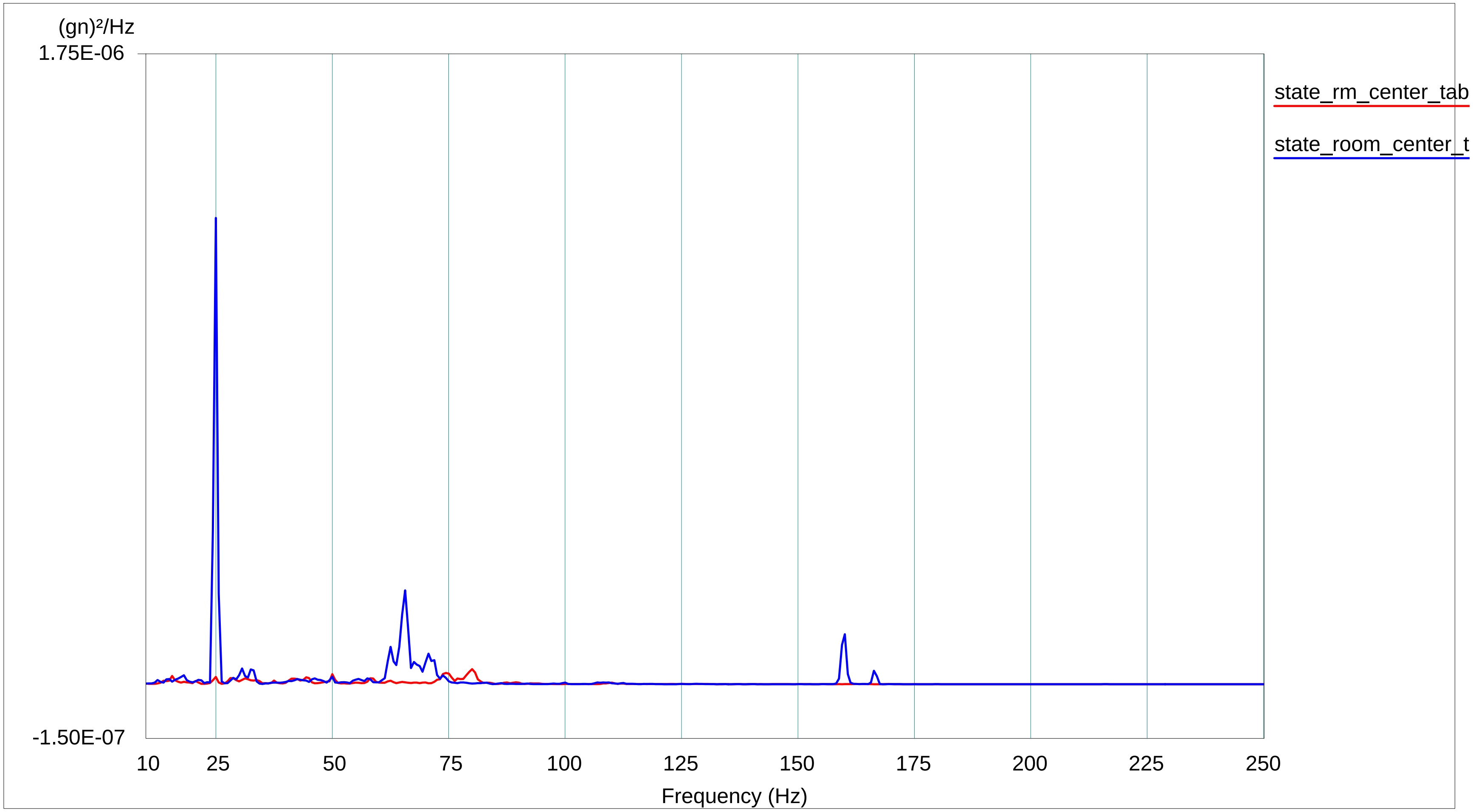

Figure 1 Salon, main table, lower level (adjacent to the floor), next to the star-board/aft column

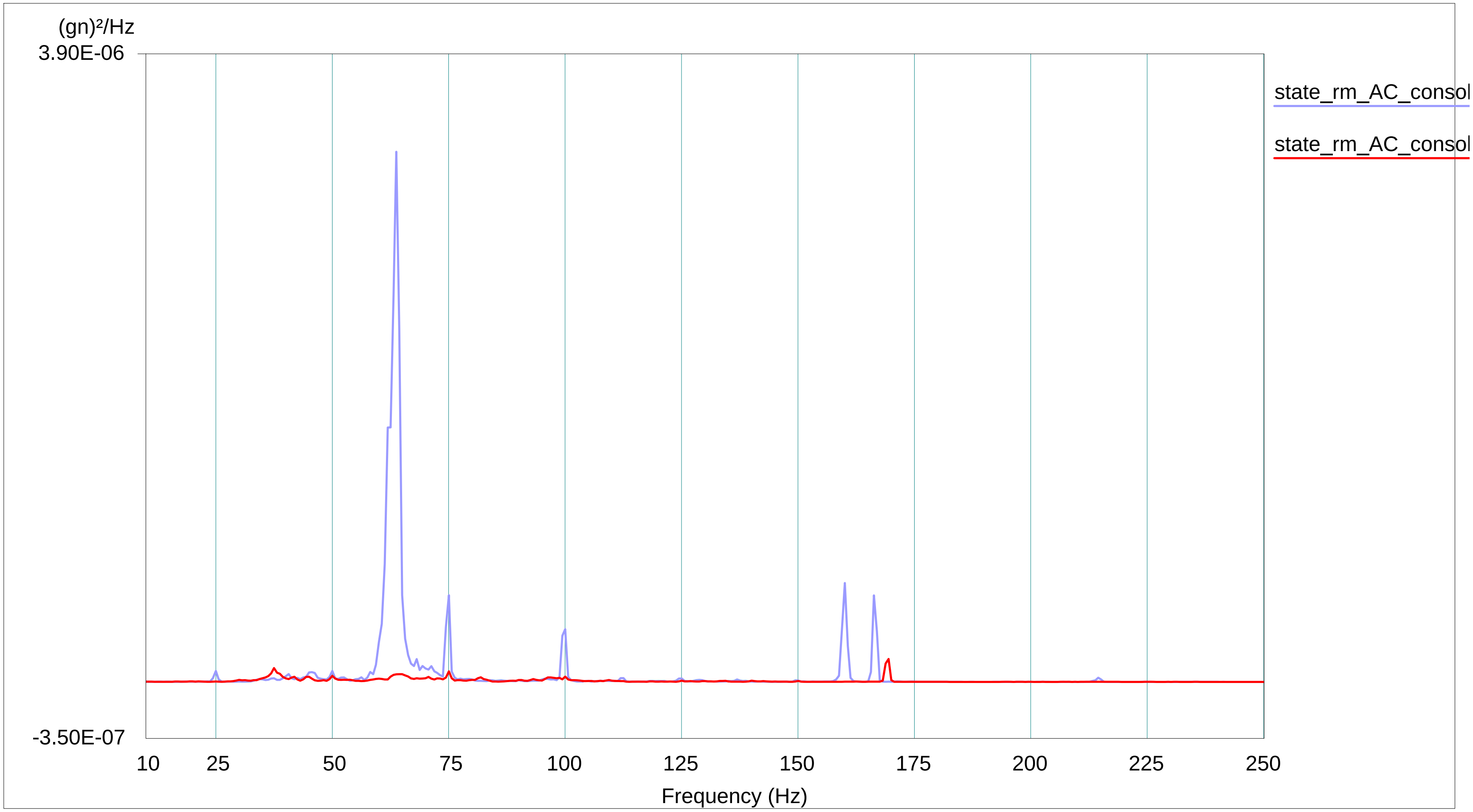

Figure 2 Saloon, star-board window shelf, adjacent to the AC grill

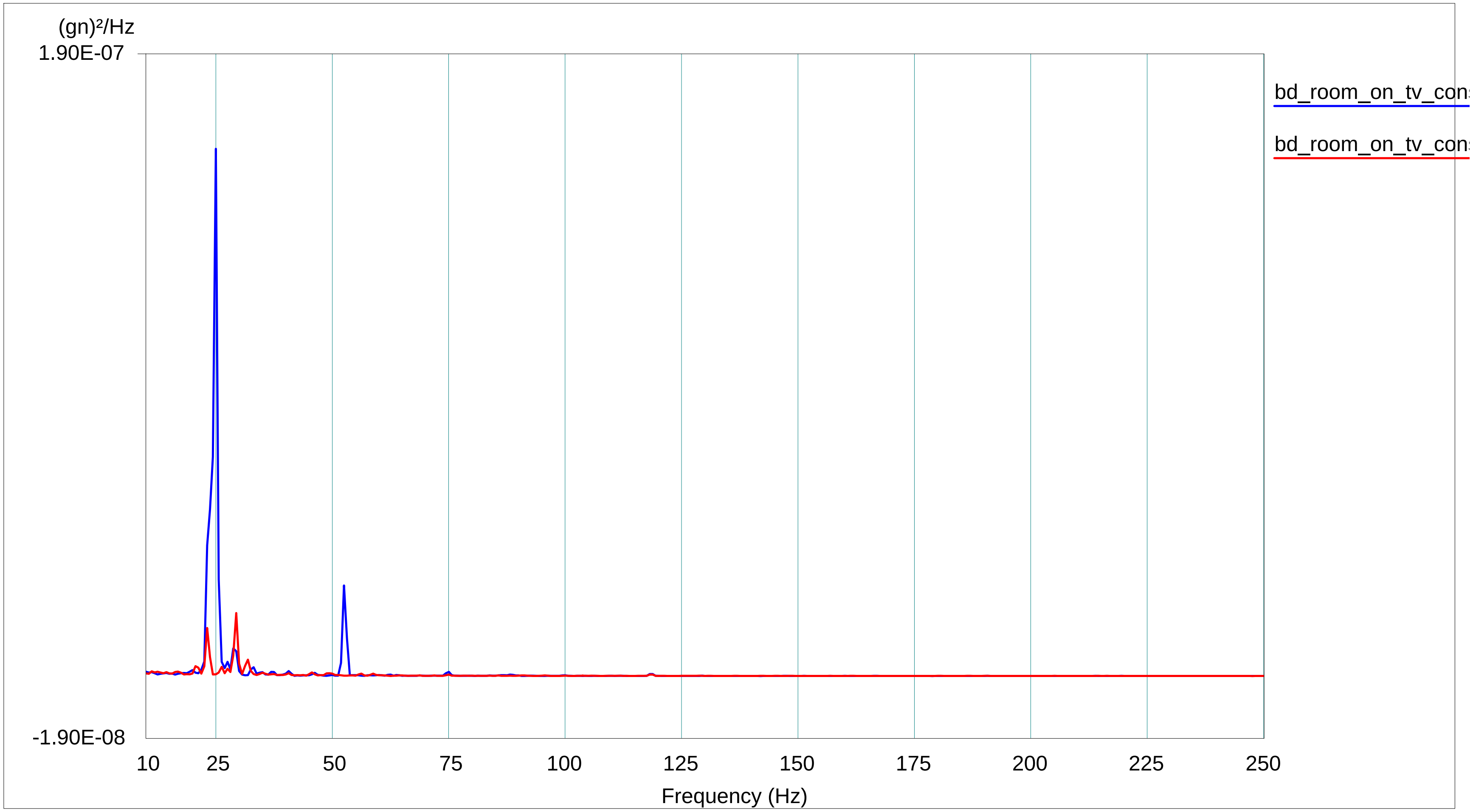

Figure 3 Bed room, TV console center

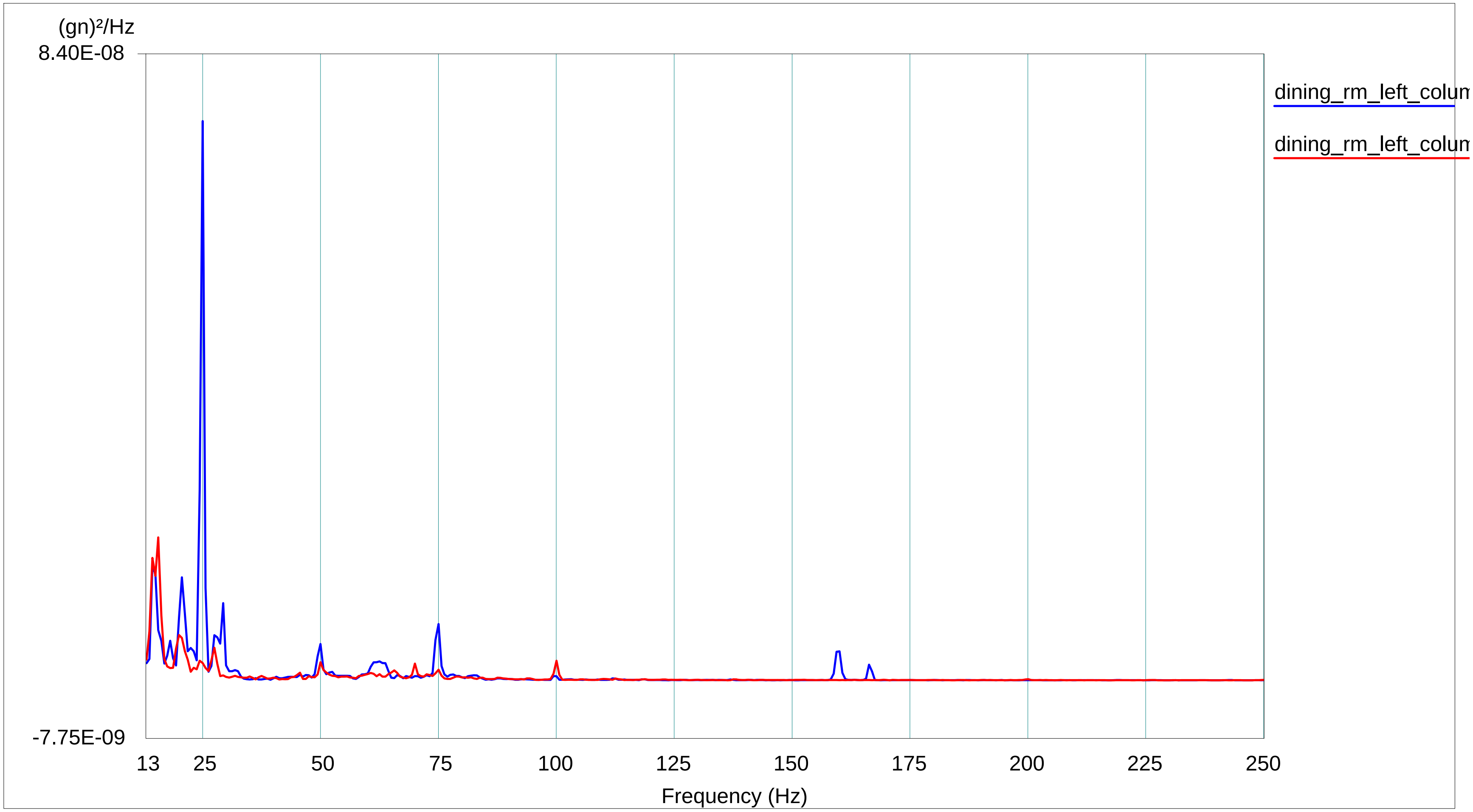

Figure 4 Dining room, table leg, port side, adjacent to the floor

In this and the following plot, the lower limit on the frequency range selected to be 13 Hz (larger than 12.5 Hz, i.e., the ½ order, which is first diesel engine excitation frequency) to signify that the peaks on the plots in the frequency range of 13-24 Hz do not correspond to the expected ½ order (12.5 Hz) and 1 order (25 Hz) vibration. Non-diesel related activities on the boat, crew movement, center diesel generator under repair, etc. have influenced the measurements.

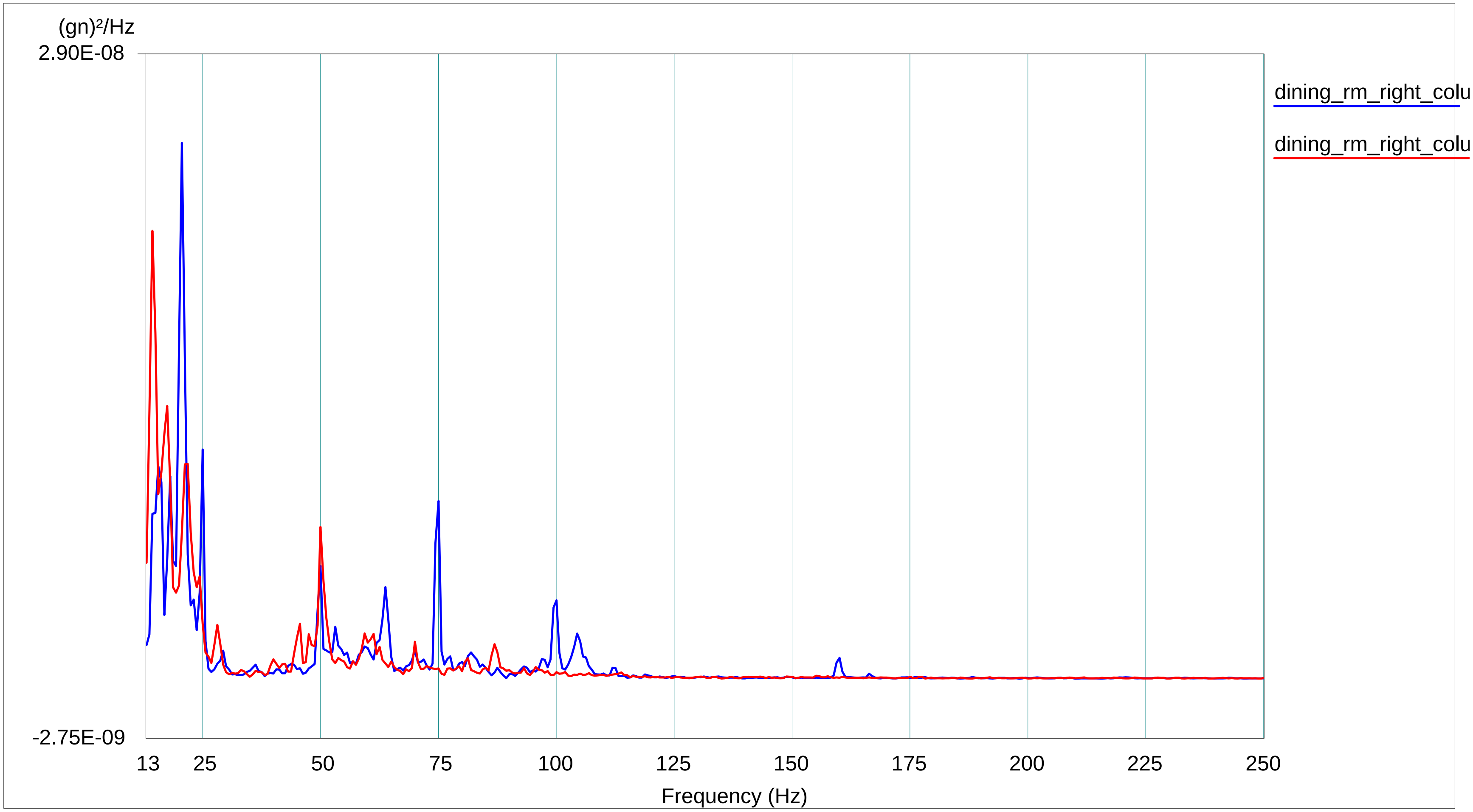

Figure 5 Dining room, table leg, star-board side, adjacent to the floor

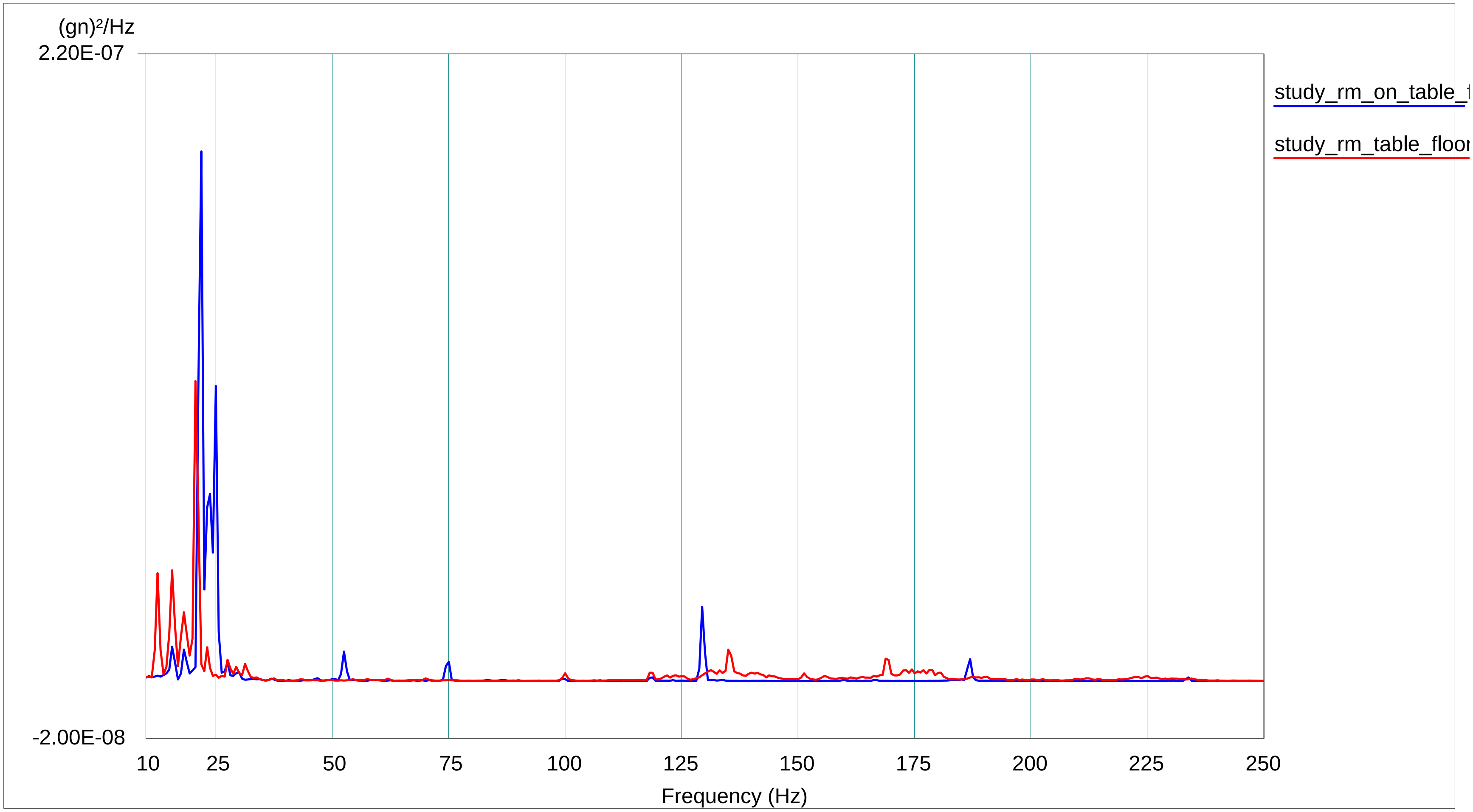

Figure 6 Day room, center of the bottom shelf of the coffee table

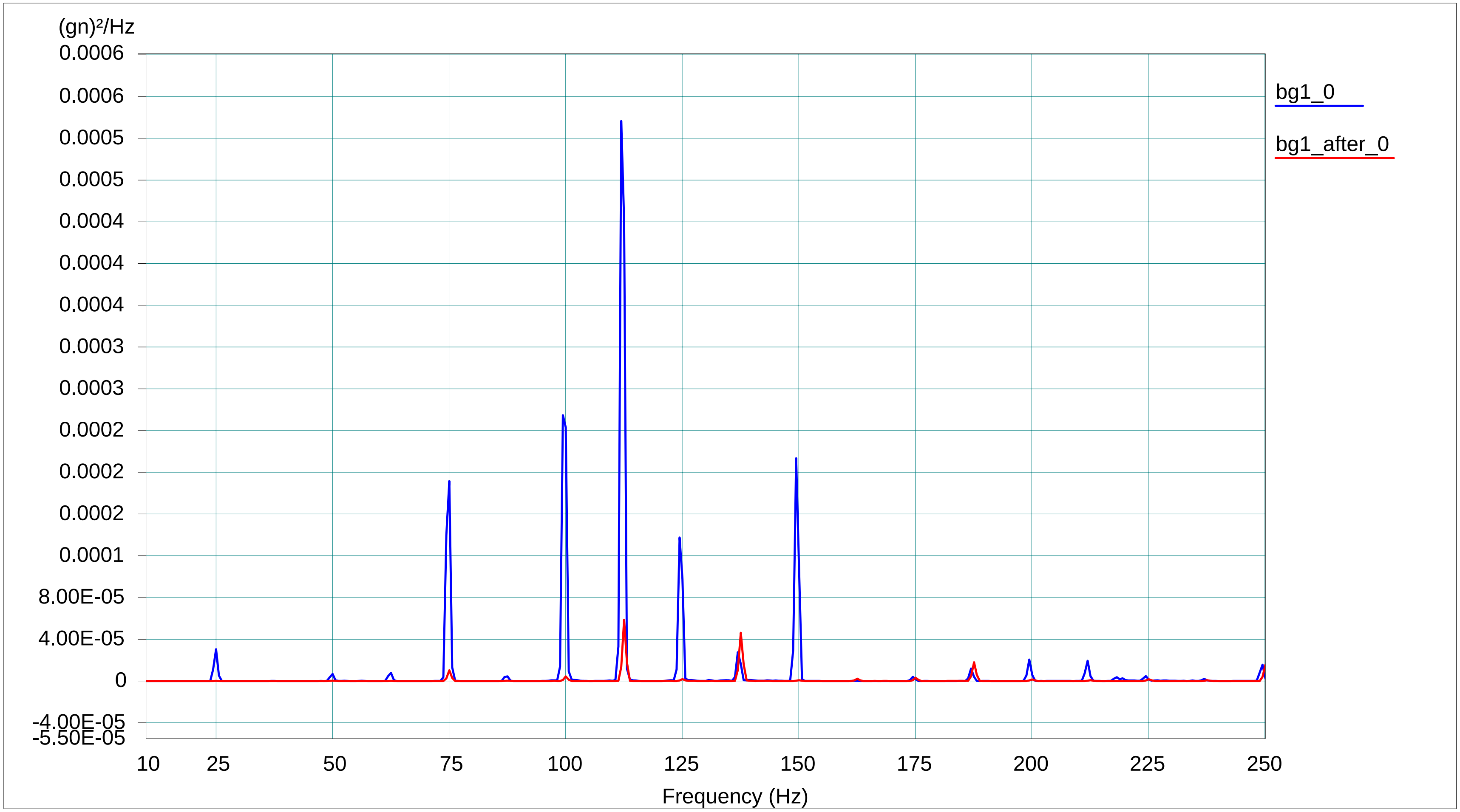

Figure 7 Engine room, base of the star-board diesel generator, next to the mount