

An attempt was made to identify and characterize known nonlinearities of an 8 Degree-of-Freedom (DOF) mass-spring system through the method presented by Adams and Allemang (Nov. 1999). This method of characterizing structural systems uses both the linear and nonlinear frequency response functions (FRF) to determine the location and extent of the nonlinearities present in a system. A known nonlinearity in the 8 DOF system is a "bumper" consisting of tiny aluminum bars with felt pads on the tips. After data was taken without the bumper installed (the assumed linear system), the bumper was then placed between two of the masses to introduce a known nonlinearity. The FRFs from both linear and nonlinear systems were then analyzed with Adams and Allemang's method to determine the validity of their method.