



## Investigating Response from Turbulent Boundary Layer Excitations on a Real Launch Vehicle Using Sea

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By Phillip Harrison

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 32 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. Statistical Energy Analysis (SEA) response has been fairly well anchored to test observations for Diffuse Acoustic Field (DAF) loading by others. Meanwhile, not many examples can be found in the literature anchoring the SEA vehicle panel response results to Turbulent Boundary Layer (TBL) fluctuating pressure excitations. This deficiency is especially true for supersonic trajectories such as those required by this nation's launch vehicles. Space Shuttle response and excitation data recorded from vehicle flight measurements during the development flights were used in a trial to assess the capability of the SEA tool to predict similar responses. Various known measured inputs were used. These were supplemented with a range of assumed values in order to cover unknown parameters of the flight. This comparison is presented as Part A of the study. A secondary, but perhaps more important, objective is to provide more clarity concerning the accuracy and conservatism that can be expected from response estimates of TBL-excited vehicle models in SEA (Part B). What range of parameters must be included in such an analysis in order to land on the conservative side in...



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