

## Subscale Acoustic Testing: Comparison of ALAT and ASMAT

The liftoff phase induces acoustic loading over a broad frequency range for a launch vehicle. These external acoustic environments are then used in the prediction of internal vibration responses of the vehicle and components which result in the qualification levels. Thus, predicting these liftoff acoustic environments is critical to the design requirements of any launch vehicle. If there is a significant amount of uncertainty in the predictions or if acoustic mitigation options must be implemented, a subscale acoustic test is a feasible pre-launch test option. This paper compares the acoustic measurements of two different subscale tests: the 2% Ares Liftoff Acoustic Test conducted at Stennis Space Center and the 5% Ares I Scale Model Acoustic Test conducted at Marshall Space Flight Center.