

Ares I Scale Model Acoustic Tests Instrumentation for Acoustic and Pressure Measurements

The Ares I Scale Model Acoustic Test (ASMAT) was a development test performed at the Marshall Space Flight Center (MSFC) East Test Area (ETA) Test Stand 116. The test article included a 5% scale Ares I vehicle model and tower mounted on the Mobile Launcher. Acoustic and pressure data were measured by approximately 200 instruments located throughout the test article. There were four primary ASMAT instrument suites: ignition overpressure (IOP), lift-off acoustics (LOA), ground acoustics (GA), and spatial correlation (SC). Each instrumentation suite incorporated different sensor models which were selected based upon measurement requirements. These requirements included the type of measurement, exposure to the environment, instrumentation check-outs and data acquisition. The sensors were attached to the test article using different mounts and brackets dependent upon the location of the sensor. This presentation addresses the observed effect of the sensors and mounts on the acoustic and pressure measurements.