

## NASA's Ares I-X Test Rocket Tested with Systems from m+p international

6 November 2009

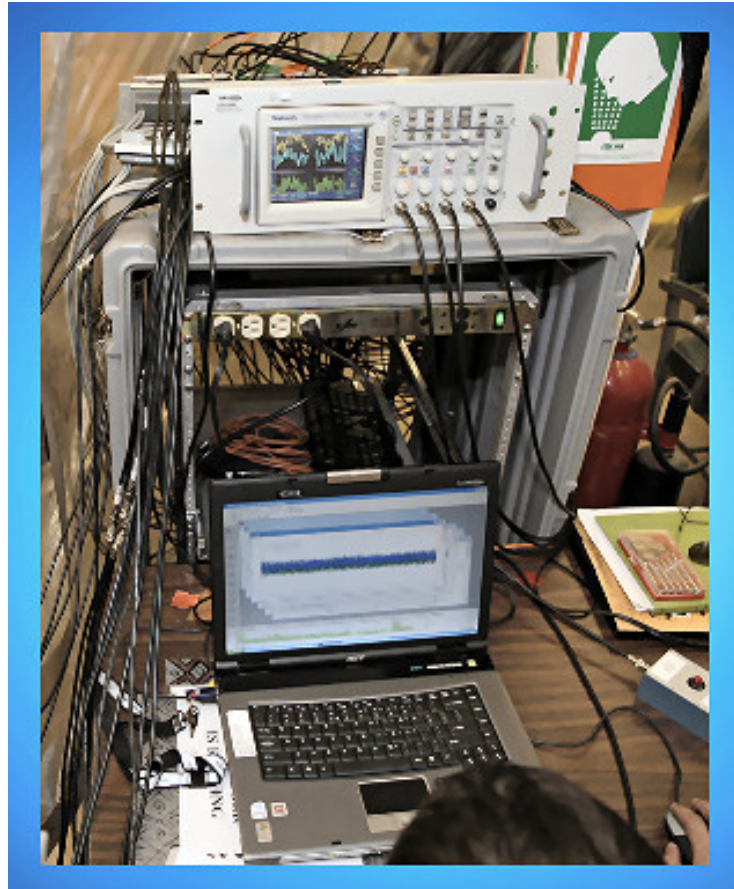
A series of modal tests on NASA's Ares I-X flight test vehicle were recently performed using m+p international's SO Analyzer and VXI hardware for data acquisition. The modal tests were performed with the 327 foot tall launch vehicle fully assembled on a Mobile Launcher Platform in the Vehicle Assembly Building at NASA's Kennedy Space Center.



*Ares I-X test rocket*

The SO Analyzer software allowed 104 channels of data to be collected while exciting the vehicle with up to 4 hydraulic shakers. SO Analyzer's throughput option was used to store time history data from all channels directly to disk during test runs so that it could be reprocessed as desired using the post-processing feature. Excitation techniques utilized during testing included multi-shaker random and single-shaker force-controlled sine sweep. Tap tests were also performed in order to investigate local modes inside the vehicle. Many of these tap tests utilized m+p international's 8 channel VibPilot system for data acquisition. The modal test data was used to

successfully identify and investigate the first 4 bending mode pairs of the launch vehicle on the Mobile Launcher Platform. These experimental modal parameters were used to calibrate the finite element model. Additional analysis predicted in-flight modal parameters, which were used to ensure the robustness of the flight control system design.



*Modal testing using m+p international's SO Analyzer and VibPilot*

The modal test was a multi-center effort including NASA Langley Research Center, Glenn Research Center, Marshall Space Flight Center, Kennedy Space Center, and the Aerospace Corporation.

The Ares I-X completed a [successful test flight](#) on October 28, 2009. The rocket lifted off at 11:30 a.m. from Kennedy Space Center in Florida for a two-minute powered flight.

---

With regards,  
m+p international Marketing

[www.mpihome.com](http://www.mpihome.com)

*m+p international listens to customers...*

m+p international  
Mess- und Rechnertechnik GmbH  
Freundallee 17  
30173 Hannover  
[Imprint](#)