LMS helps EADS-CASA speed Airbus ground vibration testing

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LMS and its Spanish partner Alava Ingenieros have completed a GVT (ground vibration test) cooperation project with the Ground Vibration Test team at EADS-CASA that enabled the team to successfully complete a 700-channel large-scale aircraft GVT on the Airbus A400M in less than a month’s time. What’s more, four additional configurations were tested in only two extra weeks.

Part of an on-site project, LMS and Alava engineers assisted EADS-CASA with the deployment of the 700-channel system comprising LMS SCADAS III hardware and LMS Test.Lab software for a series of three GVTs on the Airbus A310 MRT, the Airbus A330 MRTT, and the Airbus A400M. The project covered complete SCADAS III and Test.Lab system installation and integration, extensive training, and on-site assistance.

“From a software perspective, LMS Test.Lab is very user-friendly and quick to set up. It is very simple to perform normal-mode tuning. On the hardware side, the fact that the LMS SCADAS III equipment acquired by EADS-CASA can record over 700 channels simultaneously is an extremely important time-saver. The A400M test shows that all kinds of GVT requirements can be accomplished with this equipment—even for the largest aircrafts,” stated Mr. Posada, Head of Structural Test, EADS-CASA MTAD (Military Transport Aircraft Division). “In addition, we realized a considerable productivity increase and cut the overall acquisition time in half. This saved several crucial weeks from our normal test time.”

Performed at the FAL Flight Test Centre in Seville, Spain, the entire GVT cycle took just under a month—a fast pace for a thorough 700-channel setup that included placing 700 accelerometers. During this period, various GVTs were performed by a joint team from EADS-CASA MTAD’s Structural Test Department and Aeroelasticity & Dynamic Loads Department. Tests were carried out on the first aircraft, the Airbus A400M MSN01, which was placed on an elastic rubber platform to simulate a ready-for-flight configuration. These standard tests measured the frequency and damping modal parameters to determine the aircraft’s dynamic behavior from an aeroelastic point of view.

“The commitment from the LMS and Alava Ingenieros experts regarding the test objectives was outstanding. This ranged from the test coordination to the way they helped the team quickly resolve unexpected test and aircraft system problems. The GVT usually takes place very close to the first scheduled flight. You can easily imagine that there is no room for failure or delay. And saving a couple of weeks is a rather exceptional achievement for this kind of mission-critical test. It was a tremendous amount of excellent team work from everyone involved,” concluded Hector Climent, Head of Aeroelasticity & Dynamic Loads, EADS-CASA MTAD.