CASE STUDY

CTAG Vehicle Research & Development Centre
Vigo, Spain
Vehicle Testing

Europe

Automotive

PULSE

CTAG Vehicle Research And Development CentreThe Technological Automotive Centre in Galicia CTAG (Centro Tecnológico de Automoción de Galicia) is an independent Research and Development Centre, located in Vigo, northwest Spain, close to the huge Peugeot-Citroen plant and its many suppliers in Galicia. Automotive components and systems are developed and tested in CTAG's vehicle test facility where Brüel & Kjær's PULSE™ data acquisition and analysis systems are the foundation for its NVH testing.

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Fig. 1 *BIW (Body-In-White) modal testing of a Citroën Picasso C4 using MIMO (Multiple Input Multiple Output) analysis*

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CTAG Vehicle Research and Development Centre

CTAG was founded as a non-profit organisation by the local automotive industry association in CEAGA (Cluster de Empresas de Automación de Galicia), which comprises more than 75 local suppliers in collaboration with the Government in Galicia, the Spanish Government and the European Union. CTAG's core competencies are safety, new materials and industrialisation processes, electronics and ITS (Intelligent Transportation Systems), HMI (Human Machine Interface) and ergonomics, environment, innovation and knowledge management. And in terms of testing facilities its core competencies are metrology testing, material testing, climatic, acoustic and vibration testing, and fatigue and durability testing.

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CTAG Vehicle Testing

Fig. 2
CTAG is located on the A Granxa Industrial Estate – the largest industrial area in Galacia.

CTAG's test facility covers 17000 m2 and has a staff of almost 300 technicians and engineers, all dedicated to covering every aspect of vehicle and component research, development and testing relevant to today's automotive vehicle manufacturing. CTAG's vehicle test facility in Vigo was offi cially opened by Crown Prince Felipe of Spain on 3rd October, 2003.

Antonio Mateos, Business Development Director of CTAG says, "We believe that our facilities and special relationships with automotive suppliers, both local and European, give us a unique opportunity to stay at the technical forefront while simultaneously networking with our customers". Antonio continues, "We are always keen to discuss the automotive trends of tomorrow".

Fig. 3
Antonio Mateos, Business Development Director, CTAG

He adds, "We want to target our markets and that is the main reason why CTAG places its resources, capabilities and know-how at the disposal of the companies in the automotive sector – to strengthen research, development and innovation activities, whether they be for new products, new processes or re-engineering".

CTAG also offers its competencies to all companies focusing on automotive vehicle manufacturing. "We are part of an increasingly competitive market, and in order to keep our leading position, we are constantly investing in new, state-of-the-art technology and more advanced testing equipment," says Antonio.

"When CTAG was fi rst formed, we decided that we wanted a very fl exible solution for NVH data acquisition and analysis. After investigating various suppliers, we chose Brüel & Kjær's PULSE platform. It's modular and scalable and has an ever-increasing number of sound and vibration applications. It was a good choice and we are very pleased with our decision.

"Brüel & Kjær's reputation was also an important factor for us as it stands for quality, reliability and accuracy. It sets the standard in the industry and our customers appreciate that. What's more, the local Brüel & Kjær office has been a huge source of support for us since the first PULSE system was delivered back in 2003. Our relationship is a partnership that we really appreciate and wish to nurture," he concludes.

Modal Testing

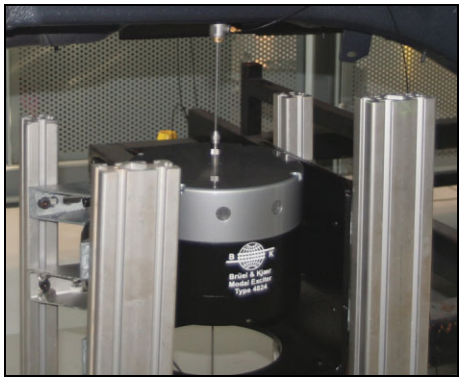

Fig. 4
Shaker setup. Through-hole design allows use of push/pull stingers

CTAG's decision to invest in modal testing applications is based on close dialogue with key customers as well as future markets demands, and CTAG is currently investing heavily in becoming a leading facility for modal testing on vehicle components and systems. The tests range from a hammer impact testing using a few channels to large multichannel, multi-shaker testing including troubleshooting, design verifi cation, benchmarking and target setting.

Antonio Mateos says, "For CTAG, it is of the utmost importance to obtain high quality test results and that these tests can be performed in a safe, quick and easy manner, and therefore, we have added Brüel & Kjær's modal solutions to our portfolio of PULSE applications".

Fig. 5
Using swivel base and spirit level for accelerometer mounting on curved surfaces provides consistent alignment and orientation of esch transducer mounted

CTAG's Test Manager Angel González, says, "We have been making many modal tests on automotive components during the last years, but we realised that we lacked experience instructural test projects with large structures, such as a body-in-white, which typically requires the use of several shakers, multiple coherence techniques, etc. We immediately thought that Brüel & Kjær could help us, due to its vast expertise within this field". Angel González adds, "The results are excellent, and we have learnt how to obtain accurate and reliable test results, even in diffi cult situations. We make all the measurements with our PULSE Modal Test Consultant, a geometry guide tool that makes it very easy to work with many measurement points without errors. We then automatically export the results to ME'scope and select the right curve fi tting method to obtain the modal parameters". Modal testing at CTAG consists of various steps depending on the task at hand:

- Test planning
- Test setup
- Pre-testing and pre-analysis
- Measurement and modal parameter extraction
- Results validation
- Reporting

"We now have the capability to make any modal test for the automotive industry," says Angel.

Antonio concludes, "To be at the forefront of our business, we need strong partnerships with our suppliers. By looking at challenges and future opportunities, CTAG can optimise its customer relationships and efficiently serve the automotive industry by performing quicker tests with highly accurate data leading to optimised results".

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