

NVH engineering services

Applus IDIADA is an independent partner for the automotive industry and a leading provider of engineering services. The **NVH engineering** department **offers an extensive range of services within development projects.**



IDIADA's international NVH team of around 50 professionals with excellent know-how and 25 years' experience in NVH is active worldwide. Our NVH engineers work on **testing and simulation of Body, Powertrain and Chassis systems**. The management network and our in-house facilities provide unique characteristics to successfully carry out global projects.

Teams are present in Germany, Czech Republic, India, China (including one of [Asia's most comprehensive proving grounds](#)) and in our headquarters in Spain (including one of [Europe's most complete proving grounds](#) and a full-vehicle [hemi-anechoic chamber](#)).

IDIADA offers a wide range of activities that allow NVH performance to be taken into account at any stage of the vehicle development project. The teams can assist our clients throughout the development of a vehicle from concept to road-use certification.

NVH concept and target definition:

In the **vehicle concept and target definition** phase, benchmark measurement services at vehicle, system and component levels are provided. Our engineers are familiar with a broad range of vehicles and vehicle types from which they can:

- Establish project targets: **Target Book** and **vehicle Modal Map**

- Define and analyse design concepts

Development and testing of NVH projects:

The **development and testing phase is a strong asset of IDIADA** with its market leading [facilities](#). IDIADA's NVH department offers full development of NVH projects; the design of validation plans; subjective assessments; and [exterior noise measurements](#). Furthermore, measurements and troubleshooting for the full-vehicle NVH performance are conducted for all contributors:

- Interior noise and vibration measurements
- Tyre noise
- Wind noise
- Powertrain noise and vibration
- Brake noise – squeal, judder, etc.
- Squeak and rattle
- Noise from HVAC units, etc.

The capacity to do **measurements and troubleshooting for the system and sub-system performance** is highly appreciated by our clients. The investigation is supported by the availability of extensive hardware and software from most leading suppliers in the field. The team is knowledgeable in source contribution analysis using techniques such as:

- Single or multi-reference Transfer Path Analysis (**TPA**)
- **Blocked force** calculations for main systems and components
- **Modal** and running mode analysis

Measurements to support CAE development and correlation are performed adopting these techniques and materials. Several types of measurements and analyses are available:

- Body-in-white and trimmed body **modal** analysis
- NTF and dynamic stiffness measurements
- **Noise** and **vibration** isolation measurements
- Structural acoustic cavity modes

NVH target validation:



At the final stage of development, IDIADA can assist with **NVH target validation**; troubleshooting and tuning; component validation; and [exterior noise validation](#).