

## A bespoke durability programme for an innovative high performance vehicle

### Case study overview

HORIBA MIRA was engaged to plan and execute a bespoke programme for structural durability testing on a new hypercar.

The vehicle marked the manufacturer's first entry into this segment. As such, it had no pre-existing test cycles or procedures that were designed to reflect the vehicle's durability requirements. HORIBA MIRA used its expertise in durability testing to define a test programme. The vehicle was then tested at HORIBA MIRA's 750-acre proving ground near Nuneaton, where its structural durability was successfully signed off.

**Engineering team deployed:** A group of five personnel based at Nuneaton, comprised of a consultant, project engineer, test technician and two drivers.



Durability testing



High Performance passenger car



UK



HORIBA MIRA has a huge amount of experience in planning and conducting accelerated durability tests. In developing this test cycle, we were able to consult more than 40 years of road load data.

**Matthew Burke, Solutions Leader for Performance, Durability and RLD**  
HORIBA MIRA



# Approach

HORIBA MIRA's CARDUR accelerated durability test programme has been refined over more than 40 years of development. The test cycles and procedures are regularly reviewed using customer surveys and data collection from real-world driving to ensure that they remain an accurate representation of structural durability over the lifetime of a typical passenger car.

The requirements for a low volume, track-focused hypercar are significantly different. Mileages tend to be dramatically lower than a conventional passenger car, while some of the more severe use cases were not considered relevant to this market. As such, the HORIBA MIRA engineers developed a modified version of the programme, dubbed CARDUR Lite.

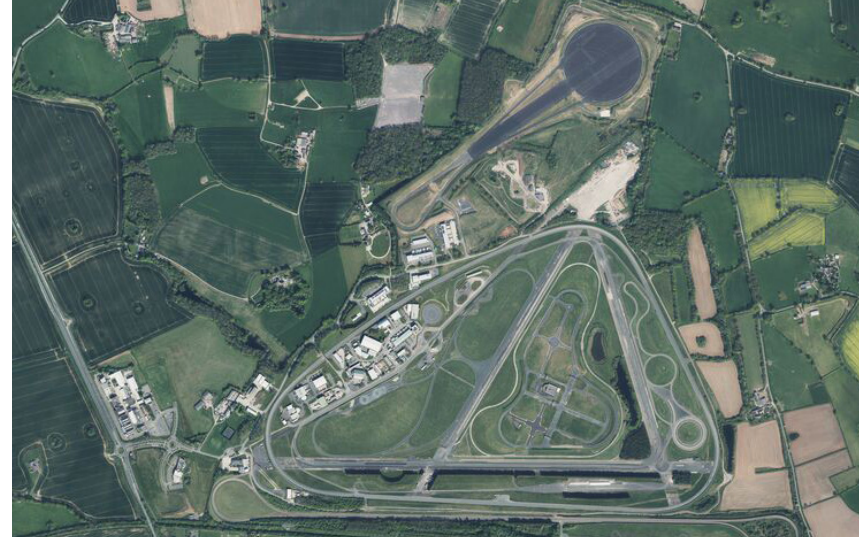
A test vehicle supplied by the manufacturer was prepared by technicians at HORIBA MIRA. A risk assessment was carried out, the vehicle was ballasted to test mass, checked for alignment and paint-marked in certain areas to monitor any movement in panels or fixings.

The specially-devised test programme included mileage accumulation on the HORIBA MIRA Proving Ground's Ride and Handling circuit and a variety of special surfaces.

## Successes and benefits

The vehicle was successfully validated and signed off for structural durability. In total, the programme took just three weeks from set up to completion. Key benefits brought to the project included:

- ✓ A **bespoke test cycle**, which drew directly upon HORIBA MIRA's extensive data on accelerated durability testing, allowing for the most **efficient and accurate** verification to take place in the time available
- ✓ Access to HORIBA MIRA's **world-class proving ground** with features available to replicate any condition from around the world, all in one location
- ✓ Efficient **test management and execution** including revolutionary tablet-based test reporting that allowed the customer to gain data as quickly and efficiently as possible
- ✓ Support technicians and engineering **facilities on-site**, in case of any contingencies allowing **rapid response** to issues, saving time, maintaining schedules and reducing costly delays



## Deliverables

- ✓ Bespoke procedure creation
- ✓ Test management
- ✓ Structural durability
- ✓ Vehicle inspections
- ✓ Vehicle development
- ✓ Test incident reporting and final test report