



WHITE PAPER

AVL European Testing Support

Real World Testing in Territory Validation

REMOTE TESTING SUPPORT IN EUROPE

Managing real world environmental validation remotely

Are you looking for a solution to validate your upcoming SOP applications?

With our extensive international network of experts and newly developed online tools, AVL can perform all your testing alleviating you from investing additional time and resources on travel restrictions, quarantines and employee wellbeing in times of crisis.

How can we handle this challenge and still fulfill your testing needs?

Our experienced team of drivers, technicians and engineers will manage and execute the testing required to validate your applications remotely remaining in constant contact and delivering results as they happen. This will allow your engineers to closely monitor and review the tests to allow changes and adjustments where necessary.



FEATURES

Introduction

The Challenge

The AVL Solution

Reference Examples

Experience

Conclusion

THE CHALLENGE

Environmental validation has become ever more complex since 2020. The current global pandemic situation and travel restrictions makes performing all the necessary validation a complex and costly task.



The ongoing travel and personnel movement restrictions appear likely to continue for the foreseeable future.



Territory based testing is still required to complete development testing and validation of products prior to production release.



Travel of engineers to support testing activities will be difficult and may result in periods of self-quarantine.

FEATURES

Introduction

The Challenge

The AVL Solution

Reference Examples

Experience

Conclusion

THE AVL SOLUTION



AVL Approach

- AVL can conduct localized territory testing through our extensive European network of Tech Centers.
- Prototypes can be shipped to the testing field and AVL expert engineers will manage the local testing.
- Testing is completed in line with customer defined procedures.
- Collected data can either be analyzed and post-processed or transferred in raw format.



Benefits

- Tailored validation plan pre-agreed with the customer.
- Validation and development done by AVL engineers while yours can continue with the local daily activities, reducing testing workload.
- Complete validation milestones whilst travel restrictions in place.
- Fast delivery of the testing results.
- Production times met.

FEATURES

Introduction

The Challenge

The AVL Solution

Reference Examples

Experience

Conclusion

THE AVL SOLUTION

AVL as a Testing Partner

AVL has a strong background on ICE, HEV, PHEV and BEV calibration and validation.

With the support of our local team of 45+ engineers, drivers and technicians, together with the area knowledge and our local contacts, we are the perfect partner to carry out environmental validation in Spain



Over **35 state of the art** programmes successfully developed.



More than **20 hot altitude test trips completed.**
Engineering team are trained to a high driving standard including high speed testing.



Broad experience in **fleet data management.**

FEATURES

Introduction

The Challenge

The AVL Solution

AVL as a Testing Partner

Testing Locations

Special Testing

Services

Reference Examples

Experience

Conclusion

THE AVL SOLUTION

Testing Locations in the Area of Granada

1 Base:
Main operational center

2 Sierra Nevada:
Altitude up to 2.500m in hot conditions

3 Motril and surroundings:
Testing at sea level and mileage accumulation possible

4 Ubeda and surroundings:
Testing at 700m and mileage accumulation possible



FEATURES

Introduction

The Challenge

The AVL Solution

AVL as a Testing Partner

Testing Locations

Special Testing

Services

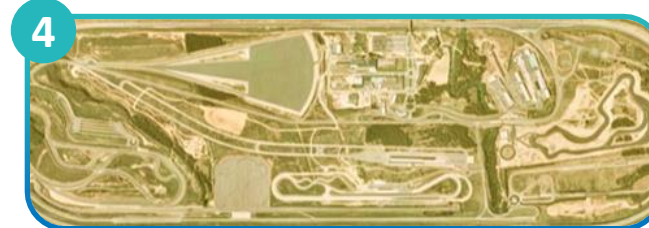
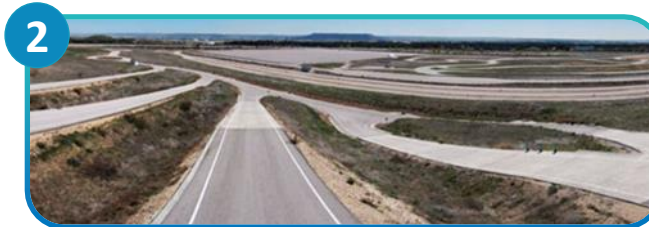
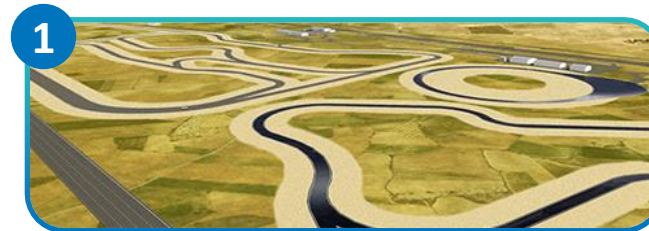
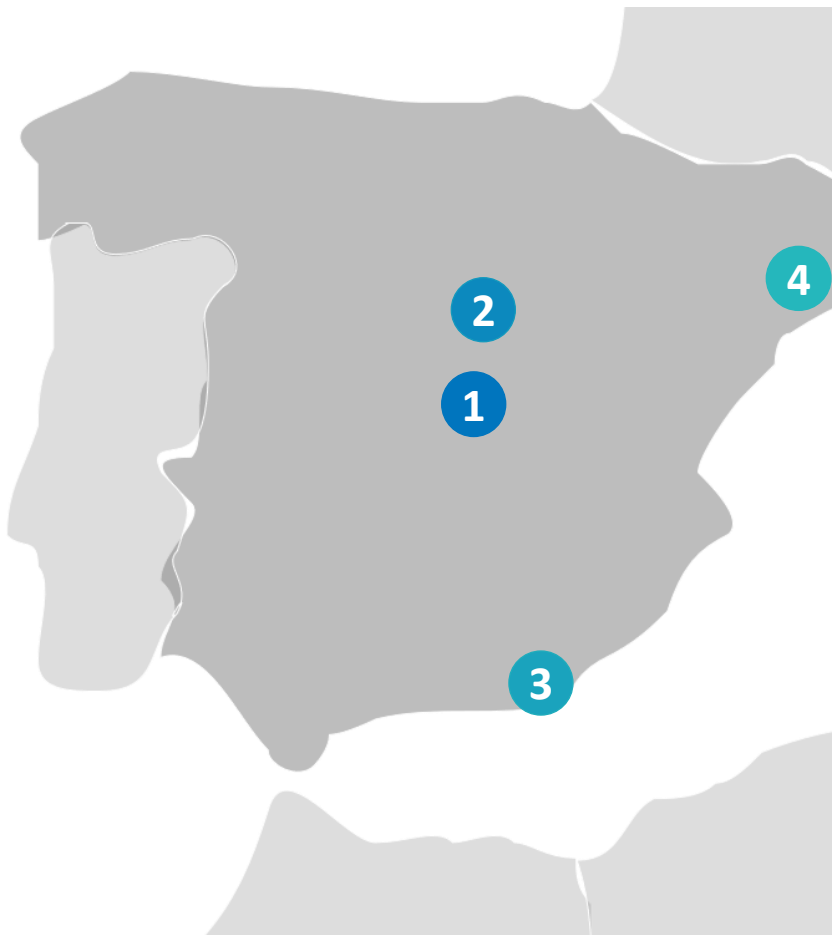
Reference Examples

Experience

Conclusion

THE AVL SOLUTION

Track Possibilities for Special Testing



FEATURES

Introduction

The Challenge

The AVL Solution

AVL as a Testing Partner

Testing Locations

Special Testing

Services

Reference Examples

Experience

Conclusion

THE AVL SOLUTION

Services Offered

AVL can provide a tailored test validation by:

- In territory testing at different altitudes / conditions
- Adapting to a given test program
- Engineering and technician support
- Data screening to ensure test data validity
- Secure data sharing system
- Local number plates for testing
- Commercial and special fuels
- Private parking for confidential vehicles
- Mileage accumulation
- Communication in Customer language or English

Optional services:

- Dyno trailer testing
- High speed / special surface testing
- RDE at 700 and 1300 m
- Cold start validation at different temperatures & altitudes



FEATURES

Introduction

The Challenge

The AVL Solution

AVL as a Testing Partner

Testing Locations

Special Testing

Services

Reference Examples

Experience

Conclusion

REFERENCE EXAMPLES

Validation test trips

Diesel + Gasoline: Euro6b, Euro6c, Euro6dT and Euro6dF validation plans completed in the following specialties:

- **Performance** – full load, torque structure, turbocharger validation.
- **Driveability** – cold driveability, anti surge, HVAC compensation.
- **Startability** – cold start at different altitudes and temperatures.
- **OBD** – monitor performance, false detection, non-detection.
- **Aftertreatment** – RDE moderate, RDE extended, temperature models, SCR models

Fleet validation

Team responsible for OBD fleet testing in several customer projects:

- **IUPR mixed cycle testing.**
- 30.000 Km validation fleets on 20+ application.
- **Specific data handling** applications developed in AVL Concerto, Python and MATLAB.



FEATURES

Introduction

The Challenge

The AVL Solution

AVL as a Testing Partner

Testing Locations

Special Testing

Services

Reference Examples

Experience

Conclusion

EXPERIENCE

The Powertrain Engineering team at AVL Spain has, on average, 4+ years experience in engine calibration of state-of-the-art projects, currently working on Euro6dTemp and Euro6dFull diesel and gasoline projects.

python™

VISION

ETAS

MATLAB®
SIMULINK®

Data acquisition and analysis competences

BOSCH

RENAULT NISSAN MITSUBISHI

Continental

ECU software experience (EMS)

FEATURES

Introduction

The Challenge

The AVL Solution

AVL as a Testing Partner

Testing Locations

Special Testing

Services

Reference Examples

Experience

Conclusion

CONCLUSION



Calibration
Engineer



Testing



Handling

Even with the challenge of the current global pandemic it is still possible to validate your upcoming SOP applications.

Relying on our experienced teams combined with our internally developed tools and methods, AVL's European Testing Support offers the possibility to perform your validation activities efficiently without having to leave your office.



On Road



Environmental
testing



ADAS &
Connectivity

FEATURES

Introduction

The Challenge

The AVL Solution

AVL as a Testing Partner

Testing Locations

Special Testing

Services

Reference Examples

Experience

Conclusion

