



Virtual Proving Ground

The integration of IDIADA Spain Virtual Proving Ground (ISVPG) with testing and simulation software has strengthened virtual development and validation activities by offering new virtual scenarios for different applications such as comfort/durability simulations, ADAS & Autonomous Driving system development and driving simulator activities.

ISVPG supports development activities by having the most important surfaces of Applus IDIADA's proving ground in

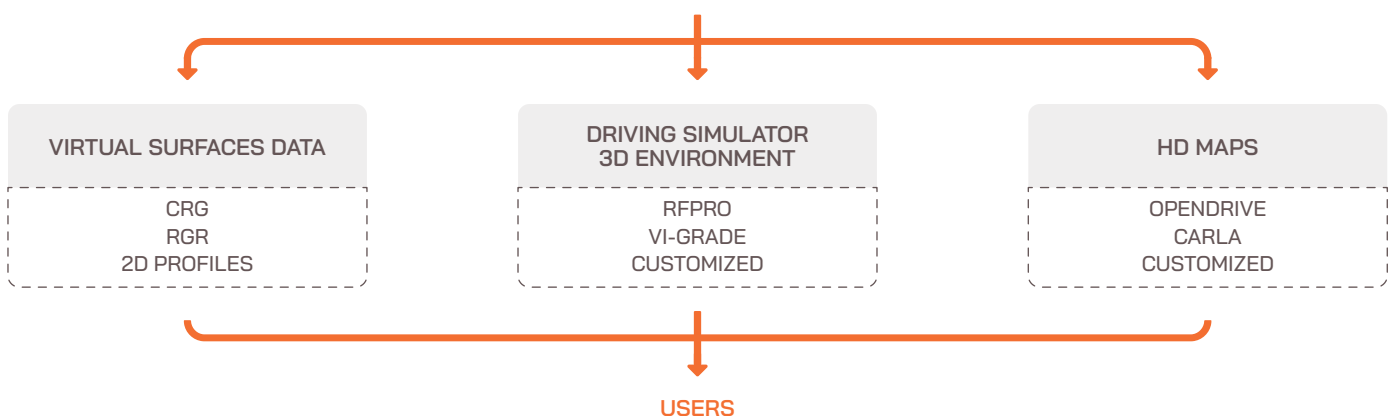
Spain scanned in high resolution. ISVPG reproduces all the macroscopic unevenness and irregularities of the real surfaces, supporting correlation activities by using an adequate representation of the road inputs. The data is ideal for multibody & FEM simulation, ADAS and autonomous driving development activities (either simulation or test where high-definition maps are required) and driving simulator applications.

HIGHLIGHTS

- ISVPG reproduces with high-accuracy real road inputs within simulation software, ensuring a high level of correlation with road/track testing
- Enhances the potential of virtual development of components, control systems and full vehicles
- Accounts for the early stages of the vehicle development process demands in terms of Comfort, NVH, Structural Durability, Control Systems and Driver Models in order to identify and solve further problems. This saves the financial and time costs associated with on-road/track test sessions & design process



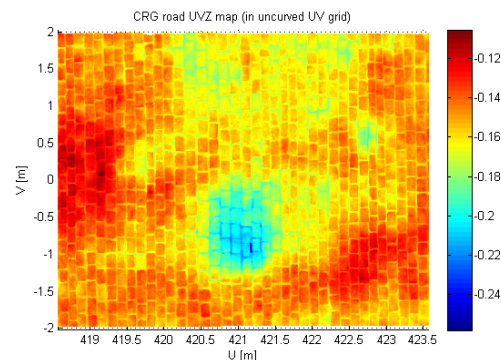
SINGLE RAW INFORMATION, SCAN DATA





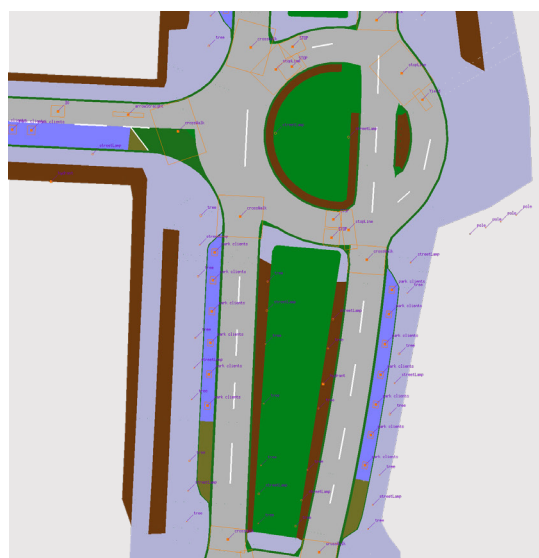
APPLICATIONS

- Comfort and ride analysis
- ADAS, autonomous driving system development and validation
- Integration into driver-in-the-loop (DIL real-time systems)
- Active system development and test planning
- Tire development





TECHNICAL SPECIFICATIONS

- The virtual data is available in several industry standard formats
- The following formats (not being an exclusive list) are available to be used in simulation software such as main Multibody, FEM, vehicle dynamics and ADAS development software
 - 3D encrypted CRG format (and also RGR format):
 - Height accuracy (relative within a 5m x 5m-Patch): 1 mm or better
 - Position accuracy of grid points (relative within a 5m x 5m-Patch): 1 mm or better
- 3D Environment for main Driving Simulator software from rFpro and VI-grade
- Opendrive format to be used under ADAS/AD simulations
- Other formats (e.g. HD maps) & track characteristics such as signalling or environment information can also be obtained upon request under standard or customized formats
- Micro-structural information up to 60 micrometers as contact patch trajectories



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