

## To Achieve Safer, More Efficient and Sustainable Mobility in the Future



**Takashi NAGANO**

Director (Board Leader of GLOBAL ATS BOARD)  
HORIBA, Ltd.

A handwritten signature in black ink, appearing to be 'Takashi NAGANO', written in a cursive style.

HORIBA Automotive Test Systems has always played a leading role in the history of emission measurement for mobility. In the automotive field, above all else we take pride in contributing to the world through our measurement and analytical technologies. These technologies are critical to successful emissions management in the face of ever more demanding requirements of emissions control legislation and IC engine calibration.

With the passage of time, three major issues have emerged that are common for land, sea and air mobility as a whole: environment, energy efficiency and safety. We think that these issues will continue to be the predominant challenges for the foreseeable future.

In the environment field, HORIBA has offered gas measurement technology centered on vehicle exhaust emission analysis and water quality monitoring equipment. We also expanded our business scope to include mechatronics by acquiring the German company Schenck DTS<sup>1</sup> in 2005 so we could supply test equipments for powertrain, drive-line and brake systems. This enabled us to start providing measurement and testing solutions in the fields of energy efficiency and safety.

During recent years in the automotive business, we have seen developments such as more stringent emission regulatory regimes like RDE (Real Driving Emissions) in the environmental aspect, electrification of powertrain bringing new focus on the energy efficiency field and a rapid expansion of active safety, connectivity and

autonomous control generating new validation challenges in the safety arena.

In order to respond to these market needs, HORIBA has prepared a framework to offer a comprehensive solution which will combine measurement and analysis products for emissions, xEV<sup>\*2</sup>, safety and CAV<sup>\*3</sup> technologies, in conjunction with the testing, engineering and consulting capabilities obtained by the acquisition of the British company MIRA Ltd in 2015. For RDE, it is now possible for us to provide consistent testing on the road as well as on a chassis dynamometer. For xEV we can offer engineering services, development and calibration tests for electrified vehicles such as HEV<sup>\*4</sup>, PHEV<sup>\*5</sup>, BEV<sup>\*6</sup>, FCEV<sup>\*7</sup> and their powertrain and battery systems. As for the safety area, we can now deal with EMC<sup>\*8</sup>, functional safety and cyber security, and carry out passive safety crash testing and analysis. We can even offer a wide spectrum of vehicle engineering, development and test based on our own proving ground.

On top of all that, in the xEV area, technologies from the German company FuelCon that we acquired in 2018 now enable us to offer evaluation equipment for rechargeable battery and fuel cell development. By integrating with HORIBA's existing test products for xEVs and our core technology for material analyzing devices, it has become possible to deliver a solution to engineer total energy efficiency from power source to driving force.

Today's 'Mobility Society' has arisen from the natural human desire to realize movements of people and goods, but it is now facing a variety of challenges. Exploiting our traditional core strengths precision measurement and analysis, combined with HORIBA MIRA's advantages in testing, engineering and consulting, HORIBA will strive to offer a total solution for application-oriented measurement and analysis across the world, and so help society to achieve safer, more efficient and sustainable mobility in the future.

\*1: DTC: Development Test Systems

\*2: xEV: Electric vehicles including HEV, PHEV, BEV, FCEV

\*3: CAV: Connected Autonomous Vehicle

\*4: HEV: Hybrid Electric Vehicle

\*5: PHEV : Plug-in Hybrid Electric Vehicle

\*6: BEV: Battery Electric Electric Vehicle

\*7: FCEV: Fuel Cell Electric Vehicle

\*8: EMC: Electro-Magnetic Compatibility

\*9: This content is based on our investigation at this publish unless otherwise stated.