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Paper title:

Unlocking the Potential of Display Simulations in the Automotive Display Development

Abstract: The development of modern automotive displays goes beyond achieving optimal optical performance—it also requires seamless integration into the vehicle. A key interface in this process is the Automotive Video Link, which connects the display to the Electronic Control Unit (ECU), such as the head unit for entertainment and navigation. This interface not only transmits video data but also supports extensive sideband communication, such as touch data exchange.

Integration challenges arise because the ECU and display often have different development timelines and maturity levels, making their simultaneous availability rare. To address this, the ability to simulate the corresponding component during development and testing becomes an invaluable tool.

This paper outlines the critical requirements for a robust "Display Simulation System" and demonstrates how such a system can be effectively implemented and used in real-world scenarios, significantly supporting display development. Beyond the example of display development, we explore the broader significance and potential of simulation systems in related applications.

Bio **Dr. Markus Kreuzer**, founder of Phymore GmbH, specializes in end-to-end engineering for automotive cameras, ECUs, and displays. He previously led the development of major display technology innovations at Mercedes-Benz, playing a key role in shaping the company's display systems. Since 2022, Phymore has partnered with TZ Electronic Systems to expand its expertise in product development for Automotive Video Link Solutions. Kreuzer holds a doctorate in physics from Darmstadt University of Technology and can be reached at markus.kreuzer@phymore.com.

Andreas Hudak is the CEO of TZ Electronic Systems, a company he founded in 2007 while studying Technical Computer Science and Embedded Systems at Pforzheim University. Alongside managing the company, he is deeply engaged in the fields of video transmission and video systems. Under his leadership, the company develops specialized test equipment for displays, control units, and cameras, with a particular focus on the automotive industry. He can be reached at andreas.hudak@tz-es.com

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