

TESTING FOR LONGEVITY AND MODERNIZATION WITH STANAG 3910

The NATO standard for dual-speed avionics databus is key to the safety and European military aviation

As the Rafale and Eurofighter Typhoon programs enter renewed development cycles, the need for robust testing and verification of onboard systems has intensified. At the core of both aircraft lies the STANAG 3910 databus – electrical or optical – providing high-integrity, deterministic communication for mission-critical subsystems. Its architecture is fundamental to the safety, interoperability, and strategic autonomy of European military aviation.

Although STANAG 3910 has been a stable standard for decades, the resurgence of activity in these programs has exposed widespread obsolescence across test and simulation environments. Legacy test equipment – hardware platforms, interface modules, operating systems, and software stacks – faces increasing pressure from discontinued support, aging components, and evolving interface requirements. While Long-Term Support (LTS) services can extend the life of some elements such as OS support, they cannot fully offset the need for redesign.

Modern test systems must reconcile legacy testing philosophies with contemporary technology and state of the art technology. This often involves reusing validated procedures, test code, and project structures while migrating to new platforms. Compatibility between new hardware/software and existing workflows is essential—not only to meet customer expectations but also to support emerging LRUs and interface types.

Over the years, STANAG 3910 test platforms have evolved from VME and VXI to cPCI, PXI, PCIe, and more recently to Ethernet and USB. Each hardware interface requires corresponding software support – from low-level drivers to application-specific GUIs. As platforms age, their availability window narrows, creating a moving timeline where older systems are gradually phased out.



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AIM has been a long-standing contributor to STANAG 3910 testing, supporting the Rafale and Eurofighter programs from their inception. Its product portfolio spans the full spectrum of test and simulation applications – from interface-level tools to complete systems for LRU suppliers, including STTEs, fiber optic validation rigs, final assembly testers, and aircraft ground support equipment.

Today, AIM supports modern form factors such as PXIe and PCIe/XMC with comprehensive software compatibility across Windows, Linux, and LabVIEW RT. The portfolio has expanded to include the Ethernet-based ANET3910 and the USB-C-based ASC3910 interfaces. These compact, modular solutions offer a unified API across all AIM STANAG 3910 products, enabling seamless integration with AIM's PBA.pro graphical interface.

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PBA.pro itself is designed for modularity, supporting multiple interface types beyond STANAG 3910 to meet the diverse demands of modern test systems. This flexibility allows engineers to build scalable, future-proof test environments while maintaining continuity with proven methodologies.

In summary, STANAG 3910 testing is entering a new phase – driven by program revitalisation, technological advancement, and the need to manage obsolescence. AIM's continued innovation and deep domain expertise ensure that engineers have the tools to meet these challenges head-on. \

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