The Evolution of Aircraft Data Networks

Abstract

This paper presents the evolution of Aircraft Data Networks (ADN)'s. It describes various Avionics data network protocols based on the Avionics systems architecture. The paper describes the evolution from a simple point-to-point protocol presented in ARINC 429 to a shared data bus protocol presented in ARINC 629. Finally, the new Data network based on AFDX (Avionics Full-duplex Ethernet) is discussed. AFDX is a new standard based on Ethernet technology and able to handle today's requirements. A brief comparison between the three different protocols is presented. The comparison shows that AFDX provides better performance and flexibility without losing the compliance with safety, redundancy and reliability of Avionics requirements.
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