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BRINGING TERRESTRIAL NETWORKING CAPABILITIES TO SPACE: UPDATE ON THE EUROPEAN SPACE AGENCY'S PUSH FOR NEXT GENERATION OPTICAL TELECOMMUNICATION TECHNOLOGIES

Abstract

In the recent years, the broadcast SatCom market showed an steady decline in customer demand. The multibillion EUR market is one of the cornerstones of the traditional commercial space market and is predominantly impacted by the steady rise of broadband internet services. Optical communication technologies have the capacity to revolutionize SatCom. The High thRoughput Optical Network (HydRON) vision of the European Space Agency (ESA) is to seamlessly bring terrestrial networking capabilities and capacities into space. Optical communication in space in the Tbps range seem technologically feasible in the coming years. Such data rates meet or even exceed current trends derived from system architectures for 5G, IoT concepts or manned lunar and deep space missions. The paper presents an update on the HydRON Demonstrator Mission, which is entering a Phase A/B1 study phase that follows the internal mission- and first system implementation aspects assessments as reported previously. It will focus on two main aspects: a) updating ESAs high level view of a potential HydRON Demonstrator system concept and b) providing an overview of the HydRON Demonstration System requirements and user requirements driving system design.