IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advances in Space-based Communication Systems and Services, Part 2 (2)

Author: Dr. Christopher Vasko
European Space Agency (ESA), The Netherlands

Dr. Eric Wille
ESA, The Netherlands
Mr. Josep Maria Perdigues Armengol
European Space Agency (ESA), The Netherlands
Dr. Harald Hauschildt
European Space Agency (ESA), The Netherlands

DEVELOPING EUROPEAN CAPABILITIES: THE PUSH FOR NEXT GENERATION OPTICAL TELECOMMUNICATION TECHNOLOGIES

Abstract

The SatCom market is a global, multibillion EUR market that is one of the cornerstones of the traditional commercial space market. In the recent years, with the slow decline in customer demand for Satellite Television and the slow rise of broadband internet demand, the market for conventional *Very High Throughput Satellites (VHTS)* has come under pressure to adapt for emerging future markets. While these might not yet present concrete business cases in the tangible near future, the data rates in the Tbps range projected from current market trends, as well those derived from studies on system architectures for 5G, new IoT concepts or manned lunar and deep space missions exceed current data capabilities by far. The European Space Agency is engaged in stimulating the European space industry to address this matter by various initiatives to develop the next generation of optical telecommunication technologies (OTS). The European Data Relay System, for example, has already established the feasibility of OTS, and positioned European industry in a global leading role. Amongst many ESA driven initiatives to foster European competitiveness, this paper aims to introduce one of the projects of relevance for new OTS recently funded by under a special programmatic line called Scylight. The ambition of the *High thRoughput Optical Network* (HydRON) vision is to seamlessly integrate a space optical transport network into existing terrestrial high capacity network infrastructure. Dubbed "Fibre in the Sky", the vision entails interconnected all-optical payloads by means of optical inter-satellite links in the Tbps regime.