

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Fixed and Broadcast Services (1)

Author: Dr. Wei Sun

OHB System AG-Bremen, Germany, w.sun@ohb-system.de

Dr. Andreas Winkler

OHB System AG-Bremen, Germany, winkler@ohb-system.de

Mr. Herbert Schuff

AUDENS Telecommunications Consulting GmbH, Germany, herbert.schuff@audens.com

Mr. Frank Ellmers

OHB System AG-Bremen, Germany, ellmers@ohb-system.de

Mr. Manuel Sansegundo Chamarro

Hispasat SA, Spain, mjseansegundo@hispasat.es

EUROPEAN SMALL GEOSTATIONARY COMMUNICATIONS SATELLITES

Abstract

Hispasat Advanced Generation 1 (HAG1) is the first satellite using the LUXOR platform which is under the development in the ESA Artes-11 program. LUXOR was formerly known as Small GEO which has been first introduced in the IAC 2006. Since the last presentation in the IAC 2007, an European industrial consortium led by OHB has completed the mission and spacecraft design. The platform Preliminary Design Review has been carried out in May 2008. The customer for the first mission is a commercial operator - Hispasat. The contract was signed in December 2008 and the satellite will be launched in 2012. To give confidence to the customer, LUXOR platform will use up to date flight proven technologies, but with some advanced technologies, such as, advanced electronic propulsion thrusters in addition to flight proven thrusters. HAG1 carries 20/24 Ku-band and 3/5 Ka-band transponders to provide commercial services. Some innovative payload technologies will be also flown on board of HAG1 to gain in orbit heritage: such as, multi-channel payload on-board processor to provide regenerative signal processing and multiplexing; new metallisation process to improve ohmic losses on reflector antennas; direct radiating RX antenna to provide flexible beam antenna; optical TM/TC interface between payload units and payload control unit; flex MPM (TWTA) to provide efficient on board power output adjustment capability. LUXOR has also been selected as the baseline platform for the ESA Data Relay Satellite (EDRS). EDRS will fly an advanced laser communications terminal. Phase A study has just kicked off in January 2009. The targeted launch date is 2013. Heinrich Hertz will also use the LUXOR platform. Heinrich Hertz is funded by the German Space Agency (DLR) and provides flight opportunities for technologies and components developed by the German Space Industry. With the HAG1 contract in hand, and EDRS and Heinrich Hertz in the line, OHB with its partners has the confidence that it will be able to speed up the product development of the LUXOR platform for potential customers in the commercial market.

This paper will first present the updated platform design and the status of the product development, will be followed with the introduction of innovative payload technologies on board the first mission – HAG1 and ended with the mission concepts of EDRS and Heinrich Hertz missions.