

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 2 (2B)

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HALO LUNAR COMMUNICATION SYSTEM: ESA PROVIDES CONNECTIVITY FROM THE
GATEWAY TO THE MOON**Abstract**

The Lunar Gateway is part of NASA's Artemis program that will serve as a multi-purpose outpost orbiting the Moon providing also communication relay capabilities to lunar assets.

The European Space Agency contributes via the ESPRIT project that includes the HALO Lunar Communication System (HLCS) and awarded the contract for its design and development to Thales Alenia Space in 2020.

HLCS is devoted to providing the radio-frequency (RF) communications links with spacecrafts that will fly around or to the Moon, and with landed assets on the lunar surface. HLCS will be installed on the Habitation and Logistic Outpost (HALO) module, that will be launched together with the Power and Propulsion Element (PEE) no earlier than end 2024. In this article, an introduction briefly describes the overall Gateway context and the HLCS role; a detailed description of the HLCS system is then given, with special focus on the RF aspects. The performance of the RF links and data rates are then reported, including the auto-tracking function of the lunar assets.

The paper will also provide updates on the current development status.