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Author: Mr. Jens Grosse
University of Bremen, Germany, Jens.Grosse@dlr.de

Mr. Stephan Tobias Seidel
Leibniz Universiät Hannover, Germany, s.seidel@iqo.uni-hannover.de
Mr. Michael Elsen
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, michael.elsen@dlr.de
Prof. Claus Braxmaier
ZARM University of Bremen, Germany, Claus.Braxmaier@zarm.uni-bremen.de
Dr. Ernst Maria Rasel
Leibniz Universiät Hannover, Germany, rasel@iqo.uni-hannover.de
Dr. QUANTUS Team
Germany, hauke.muentinga@zarm.uni-bremen.de

# EVALUATION OF ENGINEERING ASPECTS OF THE MAIUS-1 SOUNDING ROCKET MISSION

**Abstract**

The MAIUS-1 experiment is a high precision quantum optics experiment about to fly on a VSB30 sounding rocket in May 2016. The rocket will be launched from Esrange in the north of Sweden. It will lift the payload to 238 km in altitude providing approximately 360 s of micro gravity. The scientific objective of this mission is to create the first Bose-Einstein Condensate in space.
The payload comprises several sensitive components which are rarely used on sounding rocket missions. These are e.g. ultra-high vacuum pumps and sensors or sensitive DFB diode lasers. In this paper the performance of some of these instruments during flight is evaluated.
Moreover the entire scientific payload is sealed and pressurized to 1.1 bar. The pressure in the payload is monitored by an absolute pressure gauge. Based on the pressure reading the quality of the developed sealing will be evaluated and compared to the ground tests performed prior to the flight.
The payload is also equipped with numerous temperature sensors and accelerometers positioned at the system housings and rocket hull segments. The data obtained from these sensors will also be evaluated to characterize the thermal and mechanical environment aboard the sounding rocket at the scientific payload.