The Vector Experiment For The Rexus 7 and 8 Sounding Rocket

Abstract:
This paper presents results and experiences gathered from the VECTOR (Verification of Concepts for Tracking and Orientation) experiment within the REXUS sounding rocket program. A novel dynamic spiral tracking (DST) concept for the tracking of fastmoving objects, such as sounding rockets, is introduced. The method is based on conical motion of the antenna around the vector to its anticipated target as well as the measurement and processing of the received signal strength from the rocket-borne radio transmitter. In addition to the tracking experiment, a hardware implementation of an on-board real-time video compression system for space missions based on the CCSDS standard was tested. In order to meet the specified real-time compression performance, a FPGA hardware implementation was developed.

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