

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Fixed and Broadcast Communications (2)

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DESIGN AND EVALUATION OF A RECEIVER SYSTEM FOR A CONICAL BEAM TRACKING
ALGORITHM**Abstract**

Dedicated communication technologies for LEO satellites will play an important role in the future. In this regard a rerouting via relay satellites looks promising for an increase in link duration and data rates. Besides algorithms and mechanisms a suitable receiver system is needed.

According to the application of conical beam tracking algorithms for pointing special issues rise. Because the transmitter location is sampled by a purposefully introduced pointing error the receiver encounters serious signal degradation. To make such a system space-worthy means handling the impact of the pointing loss must be developed.

The scope of the paper is the design and evaluation of the receiver system used by the VECTOR project during the REXUS 7/8 sounding rocket campaign. By the venture students from the Technische Universität München went for the VERification of Concepts for Tracking and ORientation (VECTOR).

On the basis of field data conclusions will be drawn for a robust setting of the system drivers. This means both an estimation of the instantaneously received power as input for the algorithm and sophisticated methods of signal acquisition. Especially advancements in digital technology of bit synchronizers have enabled this attempt.