

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advanced Technologies (5)

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DEVELOPMENT OF THE KA-BAND TRANSPONDER FOR COMS MISSION

Abstract

COMS (Communication, Oceanography, and Meteorological Satellite) is a multi-purpose GEO satellite initiated by the Korean government. It has three different types of payload on-board. The communication payload, named SATCOM is a Ka-band communication transponder. COMS program has been led by KARI (Korea Aerospace Research Institute) with the collaboration with EADS Astrium. SI (Satrec Initiative) has been involved in the SATCOM payload system integration as well as developing the DC-DC converters for up down converters, and the Digital Control Unit (DCU). The transponder design and AIT have been successfully conducted with the cooperation of ETRI (Electronics and Telecommunications Research Institute). Interface issues with the bus system and the transponder system have been discussed and resolved with the cooperation of KARI and EADS Astrium. Unique design considerations related with having observation payloads together with a communication payload are also covered. The transponder design in terms of mechanical layout and RF path design have been done considering the thermal and mechanical issues with bus system, radiation, harness routing, and RF performance. AIT activities for the transponder are performed in two steps. Integrations and tests for Ka-band transponder have been performed on the dummy panel and AIT activities with the actual satellite system have been done afterward. COMS satellite is schedule to launch by the end of 2009.