Paper ID: 66319
student

IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advances in Space-based Communication Systems and Services, Part 1 (1)

Author: Mr. Tushar Baranwal
SRM Institute of Science and Technology, India, tusharbrn@gmail.com

Mr. Sibte Abbas
SRM Institute of Science and Technology, India, sibteabbas6@gmail.com

ISL OPERATION BETWEEN CHASER AND TARGET (TELEMETRY, TRACKING AND COMMAND FOR SRMSAT-3) ISL OPERATION ENABLES COMMUNICATION BETWEEN THE TARGET CHASER AND THE GROUND STATION AND HENCE PLAYS AN IMPORTANT ROLE IN COMPLEX TASKS SUCH AS AUTONOMO

Abstract

ISL operation between Chaser and Target (Telemetry, Tracking and Command for SRMSAT-3) ISL operation enables communication between the target chaser and the ground station and hence plays an important role in complex tasks such as autonomous docking. Telemetry and tracking command works on the communication between the satellite and the ground station and also in tracking the location of the satellite at a given instance. This mission is for a Low Earth Orbit (LEO) satellite that will revolve around the earth at a height of 500km.

In this paper we present the design and the analysis of Telemetry, Tracking and Command Subsystem (TTCS) for our college's nano-satellite (SRMSAT-3). The main objective of this mission is intersatellite link (ISL) in the S-band (2-4GHz). Secondary objectives of this mission include receiving information from ground station and transmitting payload data from both the chaser and target to the ground station. The data exchange will take place in the S-band. We designed our own patch antenna for this mission which will operated in the bandwidth of 2-2.4GHz. The simulation and design for this patch antenna was done using the HFSS software. The target and chaser will communicate at a distance of 5-10 km using another patch antenna.