Paper ID: 86116
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IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Interactive Presentations - IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (IP)

Author: Mr. DANIEL LLOCLLA IPANAQUE
Universidad Nacional de Ingeniería (Lima, Perù), Peru

Mr. Cristhian Ido Campos Quispe
Universidad Nacional José Faustino Sanchéz Carrión - Huacho, Peru
Mr. Rafael Ricardo Vasquez Rodriguez
Universidad Nacional José Faustino Sanchéz Carrión - Huacho, Peru
Mr. Eduardo Carrion
Universidad Privada del Norte, Peru
Mr. David Santiago Canches Gamarra
Universidad Nacional de Ingeniería (Lima, Perù), Peru
Mr. RAUL MARTIN FIGUEROA TERAN
Universidad Nacional de Ingeniería (Lima, Perù), Peru
Mr. Gabriel Flores
Universidad Nacional de Ingeniería (Lima, Perù), Peru

DESIGN OF A GROUND STATION FOR THE PERUVIAN NANO-SATELLITE CHASQUI II

Abstract

The design of the ground station for the Peruvian nanosatellite Chasqui II arises in the scenario where the optimization of economic resources is crucial, these needs and restrictions appear due to the deficient infrastructure in the terrestrial segment for satellite projects of academic-formative nature in Peru.

The ground station of the Chasqui II project seeks to establish a full duplex communication link between the ground station and the CubeSat. They focus on ensuring reliable communication, precise control and effective response, contributing to the success of the CubeSat mission on Chasqui II.

The research will be carried out through a practical and experimental approach, the detailed design of the ground station will be considering the requirements for two-way communication and accurate tracking of the Chasqui II satellite.

The main elements that compose our design are Yagi antennas, SDR, power amplifiers, tracking systems (Rotor). In addition, it will use SatNOGS software for tracking the Chasqui II satellite.

Extensive tests will be performed to ensure the reliability and stability of the communication link. The feasibility of transmitting and receiving data signals between the Cubesat nanosatellite and the ground station was demonstrated, as well as the tracking and monitoring of the data.