

IAF SPACE SYSTEMS SYMPOSIUM (D1)  
Space Systems Architectures (2)

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## COMMUNICATIONS SYSTEM FOR CUBESAT

**Abstract**

Of the 42 African satellites launched into space, 26 are small satellites, which shows the investment of African countries in small satellites that have been gaining space in the space sector, as they allow academics, engineers and enthusiasts to be part of this area. In Angola, the launch of Angosat-1, Angosat-2 and Angosat-3 still under construction are indicators of Angola's presence in the space sector, and the focus is on staff training and promotion of the space sector according to axis 2 of the space strategy national. At this moment Angola is on the verge of launching a small satellite (nanosatellite) and it is necessary to have greater mastery of engineering behind these subsystems. However, there is still a limited knowledge about the telecommunications subsystem, moreover, as a student of Engineering of Telecommunications, we can say that there is a high difficulty to implement and obtain the practical component in universities.

Worldwide, it is already practical to use nanosatellites in universities for scientific research and exploration and support for curricular plans. Likewise, nowadays it is already a trend to design subsystems to gain national skills in terms of architecture.

More than serving as a training tool for Angolan technicians and strengthening relations between Angola and other countries while exploring the African industry and market in several areas, within the vision and mission of the national space program in its Space Strategy of the Republic of Angola of 2016-2025. Of at least 8 subsystems of a nano satellite, this work will focus on the telecommunications subsystem, as it is one of the vital subsystems of a space mission. Therefore, the objective of this work will be to make the conceptual design of the telecommunications subsystem, simulate, model and make the subsystem prototype in order to test all interfaces with the other subsystems of a nano satellite taking into account that nano satellite will have as its main mission the Earth observation. The images will be retrieved by 5 ground stations (Cabinda, Luanda, Benguela, Namibe and Toulouse) during the satellite's sunlight periods.