NANOSATELLITE MECHANICAL AND THERMAL CALCULATION ENGINEER
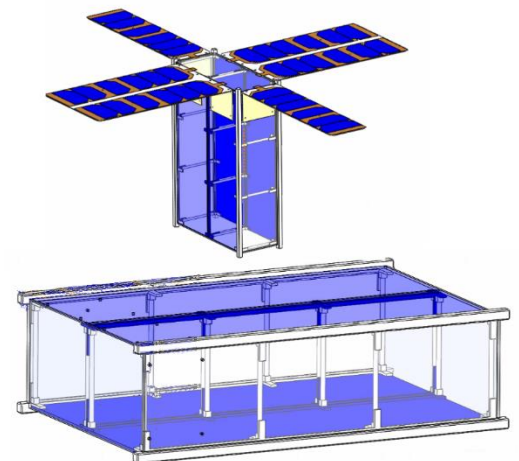
Background

The Montpellier's University Space Center is developing, testing and operating CubeSats since 2006. Following the launch of the first French CubeSat ROBUSTA, the CSUM is operating ROBUSTA-1B since three years, collecting valuable data about the low dose rate radiation effect on electronic. It is currently working on further 1U and 3U attitude controlled satellite (MTCube with ESA, CELESTA with CERN, ROBUSTA-3A with CNES and Meteo France).

Lately CSUM has identified the need and has been approach by several laboratories in order to study more ambitious concept for 6U and 12U CubeSats. After competitive selection, the CSUM has been awarded a project by the Occitanie Pyrénées-Méditerranée Région to perform preliminary definition of such missions. Part of the project is to mechanical and thermal design of a prototype structure and to perform testing in vacuum chamber.

Following studies with partners and interested lab, you will be task with establishing specification of a generic 6U and 12U structure that can accommodate as many mission as possible. They you will help to perform the design and follow production of a prototype structure. The porotype will then have to be tested in thermal vacuum.

Activities

- Centralize needs of CSUM partners and REx from current project
- Along system engineer, organize concurrent engineering pre-studies with partners and laboratories
- In cooperation with mechanical designer perform structural design of 6U and 12U prototypes
- Perform the necessary mechanical and thermal modelling and calculation
- Insure manufacturing of a prototype and test it
- Process the results and issue reporting

Skills and Qualification

- MSc degrees or equivalent in thermal and/or mechanical engineering
- Knowledge of physical process (static, vibratory, choc, heat transfers...) and associated calculation methods (finite elements, lump parameters...)
- Knowledge and experience in manufacturing processes both conventional (machining, stamping...) and innovative (additive manufacturing)
- Software : CAD design, finite elements, MATLAB, Python and MS Office
- Thermal testing experience
- Knowledge about space industries, current science mission
- Ability to work in English and being a self-starter

Selection / Conditions

- Work place in Montpellier
- 12 Month Full Time contract

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