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Small Space Science Missions (2)

Author: Dr. Jan Thoemel

von Karman Institute for Fluid Dynamics, Belgium, jan.thoemel@vki.ac.be

Ms. Fiona Singarayar

von Karman Institute for Fluid Dynamics, Canada, fiona.singarayar@gmail.com

Mr. Thorsten Scholz

von Karman Institute for Fluid Dynamics, Belgium, torsten.scholz@vki.ac.be

Dr. Davide Masutti

von Karman Institute for Fluid Dynamics, Belgium, davide.masutti@vki.ac.be

Mr. Paride Testani

von Karman Institute for Fluid Dynamics, Belgium, paride.testani@vki.ac.be

Dr. Cem Asma

Swiss Space Systems, Switzerland, cem.asma@s-3.ch

Mr. Ruedeger Reinhard

European Space Agency (ESA), The Netherlands, Ruedeger.Reinhard@esa.int

Mr. Jean Muylaert

von Karman Institute for Fluid Dynamics, Belgium, jean.muylaert@vki.ac.be

STATUS OF THE QB50 CUBESAT CONSTELLATION MISSION

Abstract

Cubesats have emerged to be recognized powerful tools for a new class of space missions. They have served many objectives and mostly to educate young space engineers by means of the hands-on design and manufacturing experience. The QB50 project aims at the use of the cubesat concept to further facilitate access to space for the future generations, to conduct unprecedented science, to demonstrate new space technologies and also to provide training to young engineers. To this end, the Project, coordinated by the von Karman Institute for Fluid Dynamics, Belgium, has invited universities from all over the world to submit a proposal for a cubesat to be embarked on the mission. The QB50 consortium is managing the mission and in particular it develops the deployment system, the common sensors, that will be placed on all science satellites, and procures the launch service. In addition, it provides a number of key technologies and services such as an attitude control system and a satellite control software. A number of such are being tested on the QB50 precursor mission. Started in November 2011, the project is now beyond the detailed design phase. All technologies developed by the consortium and community have appeared now at as hardware for display, demonstration, test or even flight purposes. The project now prepares for the assembly of the satellites and the deployment system.

The QB50 consortium consists of the following partners: ISIS B.V. (NL), MSSSL/UCL (UK), EPFL (CH), SSC (UK), B.USOC (B), TU-Delft (NL), IAP (D), DLR (D), Stanford (US), ITAM (Russia), NPU (China), Airbus (D/Fr), SLLC (USA), VKI (B). Sensor Unit providers are UiO (Norway) and TU-Dresden (D). The project is partially funded by the European Commission Framework Program 7 Grant 284427 and by consortium and community cubesat provided in-kind financial contributions. It has established Memorandum of Understandings with AMSAT (UK/NL/Fr), Aalborg University (Denmark) and the SGAC and received substantial support from governmental organizations such as BELSPO (B), BIPT (B) and the ITU. Most importantly the project consists of 50+ cubesat developing teams. The highly motivated work of individuals and organizations is very much appreciated by the authors.