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NOVASAT: TURNKEY SOLUTION FOR SMALL PAYLOAD IN-ORBIT DEMONSTRATION

Abstract

Starting from 2012, testing small payloads in Low Earth Orbit cost-effectively will be possible through NovaSat, a NovaNano developed novel nano-satellite bus. The spacecraft will offer unparalleled performance/volume ratio to perform multiple types of missions. Initially, the typical payload will be provided with a 3 kg mass, 2-liter volume and 5 W average energy consumption budget. In medium term these performances will be upgraded. NovaSat is based on the famous CubeSat standard, however it will constitute a major technology breakthrough for this class of satellites owing to intensive Research Development activities carried out by NovaNano and its industrial and academic partners in two critical domains:

- **Telecommunications:** NovaNano develops a transmitter-antenna system offering continuous **1-2 Mbps** downlink data rate.
- **Energy Generation:** a miniaturized Low-Power Solar Array Drive Mechanism capable of generating up to **50W** is also developed and is scheduled for in orbit demonstration in 2012.

The NovaSat service added value is based on the whole package offer. NovaNano aims to ensure the complete value chain from the integration of the client's payload till the in-orbit mission data relay. Moreover, in comparison with existing solutions, the proposed model lowers significantly the entry barriers for small payloads access to space in terms of mission cost and time-to-orbit parameters. The service is suitable for diverse commercial, civil and defense applications. Typical missions include advanced concepts demonstration (i.e. subsystems testing, formation flying) or scientific experiments. The service is scheduled to run on a commercial basis starting from 2012.