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Access to Space for Small Satellite Missions (5)

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SKOLKOVO LAUNCH SERVICES: AFFORDABLE LAUNCH OPPORTUNITY FOR BUILDING UP  
RUSSIAN PRIVATE SPACE ECOSYSTEM**Abstract**

For private ‘new space’ companies, the affordable and timely access to space still is a bottleneck for their business development: provision of infrastructure to access the orbit for in-orbit validation and testing of components, systems and technologies is critical for survival on space market.

Keeping that in mind, Skolkovo Foundation, RSC “Energiya” and Roscosmos have developed the project of launch provider for small satellites. The project will be implemented by Skolkovo Launch Systems – dedicated launch operator and it is expected to attract the new participants into Russian private space ecosystem, concentrated in Skolkovo, as the Skolkovo resident-companies (including the foreign teams) will get the reduced launch fee, as well as Russian universities and scientific institutions.

The project will use the “Progress-MS” cargo ship for piggyback launch of cubesats by transport and launch containers (TLC) installed on the outer surface of spacecraft. The competitive advantage of such a scheme is a stable frequency of the launch – 3 per year. Mission architecture allows launching up to 24U volume of small satellites in different configurations.

The launch of cubesats can happen before the docking of “Progress” to the International Space Station – with the insertion to orbit of up to 380 km. In this case, mission configuration envisages launch of eight 3U or four 6U cubesats from four TLCs with 6U volume each.

The other option is the launch of cubesats after docking to ISS with the insertion to 400 km low Earth orbit (LEO). The satellites are released against the ISS motion vector. This configuration envisages the use of two TLCs with launch capacity of four 3U cubesats or two 6U cubesats. The configuration with two 12U TLCs for ISS orbit launch is currently under consideration.

The first launch is expected in 2nd half of 2016 from Baikonur and its configuration will slightly differ from proposed architecture. It is supposed that three 6U TLCs with satellites inside will be delivered to ISS in the pressurized volume of cargo ship. The TLCs will be installed manually into the hatch of “Progress-MS” before undocking. The cubesats will be released before spaceship de-orbits.

Currently, the launch is being prepared and the launch pipeline is being filled up for the years 2017-2018. High demand for operator services is expected in the next five years. After the initial period, the scope of activities of operator can be extended to the commercial experiments aboard the ISS.