

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Astronauts: Those Who Make It Happen (5)

Author: Mr. Samburov Sergey
Russian Federation, rv3dr@mail.ru

Dr. Alexander Alexandrov
S.P. Korolev Rocket and Space Corporation Energia, Russian Federation, Alexander.Alexandrov@rsce.ru

LAUNCH OF MICROSATELLITES FROM MANNED SPACE STATIONS DURING
EXTRAVEHICULAR ACTIVITY OF CREWMEMBERS: RUSSIAN EXPERIENCE AND
PERSPECTIVE**Abstract**

Three microsatellites (MS) were developed and launched by *Mir* space station crewmembers during extravehicular activity (EVA) in 1997-1999. They were Sputnik-like in shape and equipped with amateur radio transmitters to broadcast voice messages in six languages and also to downlink telemetry information. On the International Space Station (ISS) this experience has been renewed by hand-launching of more sophisticated microsatellites: in 2002 the *Kolibri* (Hummingbird) MS equipped with research instruments and a telemetry system was launched; in 2006 – the *Radioskaf-1* MS, and, recently, in 2011, the *Radioskaf-2/Kedr* has started its own autonomous flight from the ISS. The two *Radioskafs* were equipped with advanced amateur radio systems. All of them have successfully completed their flight program. Currently a series of different types of microsatellites is under development with direct participation of students and young professionals of different nations across the ISS Program partnership (within the framework of Space education program). New models of MS will allow installing on board a number of research instruments for the Earth observation and investigation of near-Earth space. This paper presents a technology of microsatellites launching by the ISS crewmembers during EVA sessions; analyses some features of MS preparation aboard the ISS, crew training, EVA implementation, as well as some results of the launched MS functioning in their autonomous flight.