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SMALLSAT MARKET AT TURNING POINT IN HISTORY

Abstract

Small satellites represent a specific segment of the space industry that has been subject to numerous changes in the past two years, both on its demand and supply sides. Cubesat, nanosat, microsat and minisat launches multiplied, as did the announcements of mega-constellation projects for broadband communications and to a lesser extent for Earth observation. With the industry and market for small satellites at turning point in history, it is time for an objective assessment of future directions. The paper will present changes in the smallsat market in terms of mass distribution that will impact the launch solutions. The facts are that during the year 2014, a record of 195 satellites with launch masses comprised between 1 kg and 500 kg were launched worldwide (up from 130 units in 2013). They represented 90In the next five years, as many cubesats/nanosats should be launched than in the past 10 years, i.e. about 300 units. Growth will also be strong in two other mass categories: 50-150 kg and 150-300 kg. Together, these two mass categories concentrate 78 Mission complexity that ultimately translates into kilograms of platform and payload as the mass savings resulting from the introduction of new technologies (MEMS, ASICS, etc.) are used to increase payload performance; Multiplication of constellations for telecom and Earth observation using satellites of 150 to 200 kg. The launch of smallsats is concentrated by a limited number of vehicles for reasons of shared launches: 10 vehicles have been responsible for three-quarters of 620 satellites launched in the past 10 years. These 10 vehicles have been developed by five countries (Russia, USA, China, Japan, and India). The remaining 155 satellites have been launched by 15 other vehicles, some of them newcomers (such as Falcon, Vega and Epsilon) and others with heavy-lift capacity (such as Ariane and Atlas).