Mission Analyses for Engineering Test Satellite, KITSAT-3

Sungdong Park, Sungheon Kim, Dan Keun Sung, Soon Dal Choi
Satellite Technology Research Center (SaTReC), KAIST
373-1 Kusung-Dong, Yusung-Ku, Taejon, 305-701, Korea

The SaTReC has developed and been operating two micro-satellites, KITSAT-1 and 2, and is now developing the third satellite system, KITSAT-3. The KITSAT-3 is designed and operated from the basis of engineering test purposes. The KITSAT-3 system is a small satellite with a mass of approximately 100 kg, however, 3-axis stabilized. Each subsystem has been designed from similar concept to the KITSAT-1/2, however system architecture is so unique and modular that can be easily modified and expanded for future missions. This paper presents how the KITSAT-3 system has been designed at system level. It will also include critical mission analyses such as power budget, mass budget, thermal analysis, link budget, operational scenarios and attitude maneuvering under given constraints. The results of mission analyses will generate a baseline system for preliminary design.