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PRELIMINARY STUDY ON NEAR SPACE ENVIRONMENT SIMULATOR

Abstract

As the potential military value of Near Space has become the focus of world, the research work of Near Space high-resolution for earth observation system, which takes Lighter-than-air vehicle as flying platform, is in full swing. Owing to the Near Space system has something that differences from the general aircrafts and spacecrafts on flight environment, it is considerable to develop a ground testing facility, which is similar to Wind Tunnel or Space Environment Simulator, to test environmental adaptability of the Near Space system, to reduce risk on the system general design and flight tests, and to ensure the reliability and stability of the system operation. On the basis of analyzing the environmental influences on the system in working condition and considering the test requirements of the system, this paper elucidates the limitations of the existing ground testing facilities on simulating Near Space environment. Preliminary discussions on several possible overall projects of Near Space environment simulator are made by means of theoretical analyses and computer simulations to look for a kind of feasible and economic approach to simulate the Near Space environment.