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FEATURES OF DETERMINING THE DESIGN PARAMETERS OF THE CONTROL SYSTEM OF POWER SPACECRAFT FOR CONTACTLESS POWER TRANSMISSION TO A SPACE INDUSTRIAL PLATFORM

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The study of the features of near-Earth space industrialization is a promising line in space science. The scientific development of this line is rather deep, and it is carried out both at a theoretical conceptual level and at an experimental level by trying various technological processes onboard the International Space Station. One of the lines of this concept is the study of the features of designing a power system for a space industrial platform. The power system is of the distributed type, which provides for the combined use of power generation modules onboard the space industrial platform itself and an orbital constellation of power spacecraft. In its turn, the use of power spacecraft with contactless electric power transmission to a space industrial platform is intended for highly power-intensive technological processes.

In view of the aforesaid, the goal of this paper is to study the features of controlling the power spacecraft of the distributed power supply system of a space industrial platform in such a way as to provide the synchronization of their operating modes with the operation sequence of the space industrial platform. A power spacecraft's angular motion controllers are synthesized for a solar battery charging mode, a receiving spacecraft aperture pointing mode, and a waiting mode. Methodological recommendations are given on synthesizing the operation schedules of the power spacecraft of the distributed power supply system in such a way as to provide their synchronization with the operation schedules of the space industrial platform. The design parameters to be chosen in designing spacecraft for contactless power transmission to a space industrial platform are identified.

Keywords: *space industrial platform, power spacecraft, operation schedule, angular motion control system, contactless power transmission.*

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