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COMBINED CONTROL OF GEARLESS ARC-CORE ELECTRIC DRIVE OF A SHIP RADAR ANTENNA

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Abstract

The calculation and analysis of the aerodynamic loads of the ship's antenna radar station are carried out. An expression is obtained of the dependence of the torque on the shaft of the antenna drive on its rotation speed, rotation angle, speed and direction of wind flow, on the basis of which a device is implemented for indirect measurement of the load torque. Has been synthesized a combined automatic control system for a gearless arc-core electric drive of the radar station antenna, the main channel of which operates according to the deviation control principle with a closed speed control loop, and the second channel, which operates according to the disturbance control principle (load torque) and has an open loop. Studies had confirmed the effectiveness of combined control, the use of corrective loop allows compensate the load effect on a given value of the speed of the antenna. References 12, figures 4.

Key words: ship radar antenna, gearless arc-core electric drive, combined automatic control system, disturbance compensation, synthesis, research.

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