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Key words: object velocity, automatic tracking system.

The algorithm for measuring virtual (relative) velocity of objects uniformly and straightly moving in space in an automatic tracking system in the absence of information about the range is offered. The results of experimental research are also presented. 5

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Key words**:** radiolocation, three-dimensional image, Doppler filtering, coordinate estimation, low-altitude flight.

Algorithms of three-dimensional radio images formation of terrestrial surface in on-board Doppler radiolocation based on multi-channel processing and obtaining the estimates of space coordinates of reflection elements are presented. Comparative analysis of algorithms by mathematical modeling is done. It is shown that the algorithm with the greatest accuracy is the one based on phase method of coordinates estimation 11

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Key words: Stokes parameters, polarization coefficient, Muller matrix.

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Key words: nonlinear systems, SDRE controller, SDARE observer, SDRE integral control.

This article focuses on task which purpose is to develop tools for synthesis of nonlinear control systems represented by "input-state-output" model. The method based on the solution of state-dependent Riccati equation (SDRE) is applied for controller's designing. The use of SDRE controller may lead state vector and control signal to zero values. Integral control is used to solve the problem of tracking. The application allows to design control system with observer status which is based on the solution of state-depending algebraic Riccati equation (SDARE)......................22

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Key words: radio signal adaptation, code sequence ensemble, data communication intelligence system, multiobjective optimization.

The procedure of four-position radio signal synthesis to adapt data communication intelligence system to interference effect is proposed. This procedure is based on multiobjective optimization methods of code sequence ensemble. It is shown that the synthesized signals increase radio noise immunity by more than 4 dB (compared to QPSK signal by direct-sequence spread spectrum with MLS) with improving cross-correlation characteristic. These characteristics indirectly define sensitivity to mistakes of clock system 29

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Key words: few-element antenna array, spatial compensation of interferences, maximum likelihood method.

The problem of determining the direction of the source of radio signal under the action of spatially correlated interference is being solved. The algorithms of optimal estimation of angular coordinates for deterministic signal, quasideterministic signal, random Gaussian signal are considered. The error in determining the direction of the source of radio signal is calculated based on Cramer-Rao boundaries according to the considered signal-interference situation. The influence of spatial structure of antenna array to the error in determining the direction of the source of radio emission is being researched...34

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Key words: dial-up filter, modeling, analysis, optimization, phase shifter.

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Key words: narrowband interference; interference immunity; convolutional decoding.

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A.M. Abramov, V.V. Bondartsev, S.G. Gurzhin, V.I. Zhulev, M.B. Kaplan, E.M. Proshin, A.V. Shulyakov. VIRTUAL METROLOGICAL INSTRUMENTS TO TEST ADC MODULES FOR SYSTEMS OF ONBOARD MEASUREMENTS

Key words: automation of metrological testing, measuring virtual instruments, program modules, measurement tools, models and characteristics of analog-to-digital converters.

Modified methods and means of metrological tests of transducer system modules, onboard

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