ABSTRACTS

**ВОПРОСЫ РАДИОЭЛЕКТРОНИКИ**

### серия

**ТЕХНИКА ТЕЛЕВИДЕНИЯ**

**2018 вып. 1**

*Glasman K. F.* **Development trends television broadcasting. In the light of the International Congress of Broadcasters IBC2017**. **PP. 3–12.** The main trends in the development of television broadcasting are considered. It is shown that the main directions are ultra-high definition, virtual reality, interactive television. **Keywords**: high-definition, ultra-high-definition, virtual reality, interactivity

*Gogol А. А., Sineokov P. I.* **The use of a holophonic method of recording sound in a «bundle» with a panoramic camera. PP. 13–16.** A method for arranging an installation which allows to record panoramic sound and panoramic video with subsequent broadcasting to the viewer. **Keywords:** holophonic installation, panoramic sound, binaural recording, panoramic video, virtual reality.

*Mantsvetov A. A., Bobrovsky A. I.,* *Morozov A. V., Kurnikov A. S., Chepelev A. G.* **An image sensor model for astroorientation systems with rolling shutter distortion research. PP. 17–25.** A developed image sensor model, which allows to consider image sensors technical features and image distortion caused by sensor movement while signal exposure is considered; a model product is distorted by described factors image. **Keywords:** astroorientation, rolling shutter, image sensor model, distortion

*Sagdullaev Yu. S., Smirnov A. I.* **Control of changes in telemetric information in television images of spacecrafts. PP. 26–33.** Features of fixation and use of current changes of symbolic telemetric information in television images of space vehicles for monitoring of dynamic modes. **Keywords:** space vehicles, convergence, television Images, telemetry information, processing and separation of signals, control of dynamic modes

*Zimin V. A., Mantsvetov A. A., Morozov A. V., Sashin D. I., Isakov I. D.* **High definition television test chart for collimator mounting. PP. 34–40.** Comparison of television test charts properties with different mask layers (chromium and photo emulsion) on glass surface is proceed. **Keywords:** television test chart, collimator, contrast, modulation transfer function

*Mitiani G. Sh., Markelov S. V., Borisenko A. N., Ardilanov V. I., Murzin V. A.* **Building and measurement of focal plane for camera based on large-format CCDs and mosaic. PP. 41–48.** Astronomical application of large-format CCDs is associated with high requirements of wide-angle optics to the focal plane flatness. Here we review the actual problem of building the precision focal plane for camera with large-format CCD and describe the technique of high accuracy measuring the mosaic flatness. Here is an overview and comparison of the materials used to create the mounting platform and the technique of flatness alignment from 107 μm to 34 μm for one of the mosaic implementations, with 3 μm cold plate instability at the temperature range from −100°C to −130°C. **Keywords:** CCD, flatness, focal plane, alignment, wide-angle optic

*Dvornikov S. V., Pogorelov А. А., Romanenko P. G., Kochetkov А. O., Dvornikov A. S., Dombrovsky Y. A., Fedorenko I. V. Kolushev E. E., Kotov А. А., Duisenbekov O. A.* **Model of damping of signals for planning zones of covering digital television transmitters. PP. 49–53.** A simplified approach to calculating the signal attenuation level for television transmitters based on the COST231-Hata and Xia-Bertoni models is proposed. Numerical estimates are obtained. Recommendations for application in practice are given. **Keywords:** digital television, coverage areas, signal attenuation level, model COST231-Hata, model Xia-Bertoni.

*Dvornikov S. V., Pshenichnikov A.V., Litkevich G. U., Burykin D. A., Lizenko K. S.* **Proposals for implementation of modulation symbols transmission procedures in video transmission standards. PP. 54–60.** It is proposed to perform cyclic shift of in-phase components to increase noise immunity of video transmissions on the basis of OFDM-technologies. An analytical expression is obtained for calculating the optimal depth of the cyclic shift. The values determining the depth of the cyclic shift for the TETRA standard. **Keywords:** cyclic shift, time interleaving, transfer of video, OFDM technology, protocols of the TETRA standard.

*Dvornikov S. V., Simonov A. N., Fedorenko I. V.***Positioning in mobile TV networks**. **PP. 61–69.** The methods of geolocation and coordinate metametry, potentially applicable to solving the problem of positioning in mobile television networks, are analyzed. Their potential capabilities, advantages and limitations in application are shown. The features of realization. **Keywords**: mobile TV, methods of coordinateometry, positioning of mobile objects.

*Tsytsulin A. K., Rogachev V. A., Morozov A. V., Bobrovsky A. I., Gel V. E.,**Chepelev A. G.* **Probabilistic characteristics of solving statistics in the television system, adaptive to plot dynamics. PP. 70–77.** The decisive statistics of the TV system adaptive to the dynamics of the plot are considered. The exact value of the Fischer−Snedekor statistics is determined through the beta distribution. Approximation by a normal distribution is obtained. On the model and real plots the similarity of cumulative histograms and computed distribution functions is shown. **Keywords:** television system, adaptation, Fisher−Snedekor decision statistics, beta distribution, approximation

*Bobrovsky A. I., Fahmi Sр. S., Sokolov Y. M.* **The synthesis of the devices of the pyramidal-recursive coding of images on signal processor. PP. 78–89.** Describes the main characteristics and the architecture based on digital signal processor with an emphasis on the method of synthesis of devices for encoding and decoding images with the use of signal processors. The parallel algorithms and schemes based on them to achieve the maximum performance of a multiprocessor system with multiple stream of commands and data. **Keywords**: digital signal processor, parallelism, Harvard architecture, evaluation, model, polygon, image.

*Anikin A.G. Kuzmin B. V.,* *Pustovoi* *A. Yu.* **The method of calculating the values o–f the coefficient of geometry of a differential-ranging method of positioning. PP. 90–95.** In the article the obtained expression for calculation of factor geometry for a differential - ranging method of positioning and expressions to determine the angle of intersection of the position lines and angles of sight depending on the topology of the DF system. The results of the computer simulation. **Keywords**: bearing, radio source, position error, geometry, position line.

*Karev P.V.* **Review of microscanning and optical stabilization systems in infrared cameras. PP. 96–102.** Considered the usage of piezo actuators in lens micro scanning systems. It is shown that the technologies of micro scanning and optical stabilization are successfully realized in ground, aeronautical and space technologies. **Keywords:** piezoactuator, lens microscanning, IR detector microscanning, optical image stabilization

*Dzitoev A. M., Lapovok Y. V., Khankov S. I.* **Influence of heat exchange with the environment on the thermoinduced shift of focus of the reception mirror of the telescope. PP.103–109.** Dependences from absorbed by a working surface of a reception mirror of the telescope of specific power of radiation of sizes of the thermoinduced focus shift taking into account heat exchange with the environment on working and back surfaces of a mirror are investigated. Researches were conducted for limit cases of horizontal and vertical placement of a reception mirror at the Earth's surface. Weak influence of orientation of a mirror at the prevailing influence of his sizes and heatphysical properties of material is shown. **Keywords:** a reception mirror of the telescope, an axial mirror, an off-axis mirror, the thermoinduced focus shift, heat stability of optical system.

**Memory I. N. Pustynsky**. **Pp.** **110**.