**ABSTRACT**

Scope of work – 105 pages;

Number of illustrations - 37;

Number of tables - 32;

Number of sources per link - 24.

**Topicality.** Currently, various methods are used to control the condition of a contact wire of a railway transport: contact and contactless. Devices that implement these methods determine the diameter of the contact wire, the degree of its wear and the temperature of overheating.

Contactless methods of monitoring the condition of the contact wire have the advantage over the contact - they are safe for the operator.

Nowadays, projection, shadow and laser methods of control of the state of the contact wire are still used, but they require a special arrangement and condition of the atmosphere, which makes their use impractical in emergency situations and also sensitive to vibration. It is more appropriate to use thermal methods to control the condition of the contact wire. Spectral ratio pyrometers do not require special conditions for measuring the temperature of the contact wire, but one of the significant disadvantages of such pyrometers is their dependence on the radiating power of the object being measured, which introduces errors in measuring the temperature of the contact wire overheating.

That is why the study of the properties of the parameters of the spectrometer pyrometers is an important scientific and technical problem, which is solved in this dissertation.

**The purpose of the study** is to analyze the properties of spectrometer pyrometers, taking into account factors that may affect the accuracy of measurement and refinement of the spectrometer pyrometer parameters to reduce the dependence of these parameters on the emissivity of the object under study.

**Objectives of the study:**

1. Analysis of the parameters of the research object that affect the emergency condition of the contact wire.

2. Review of thermal methods for monitoring the condition of the contact wire.

3. Analysis of radiation method capabilities.

4. Analysis of the capabilities of the spectral ratio method with the proposal of improving the accuracy of measuring the temperature of the contact wire.

5. Development of a startup project.

**The object of the study** is to monitor the condition of the contact wire of railway transport by thermal methods.

**The subject of the study** is a radiation pyrometer and a spectral ratio pyrometer.

**Publications**

1. Kucherenko O.K. Application of spectral ratio pyrometer to control the wear of the contact wire of the railway network / Kucherenko O.K., Tomashevska A.E. // Bulletin of KhNU, №1, 2019. P.244.
2. Kucherenko O.K., Tomashevska A.E. Abstracts of the Report of the International Scientific and Technical Conference "Instrument making: the state and prospects". Compensation of errors of the spectrometer pyrometer. Kiev. 15.05.2019.
3. Kucherenko O.K., Tomashevska A.E. Abstracts of the Report of the International Scientific and Technical Conference "Instrumentation: Status and Prospects". Using Spectrum Ratio to Control the Condition of Contact Wire. Kiev. 15.05.2018.
4. Kucherenko O.K. Correction of the output signal of the spectral ratio pyrometer in determining the contact state / Kucherenko OK, Tomashevska A.E. // Bulletin of NTUU "KPI", Instrument making series. –

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