JUSTIFICATION OF THE SELECTION OF THE FREQUENCY RANGE FOR THE LOCATION OF THE TEST SIGNAL OF THE STATOR WINDINGS OF A THREE-PHASE ASYNCHRONOUS ELECTRIC MOTOR

d.sc. (tech), professor O.M. Ananieva, d.sc. (tech), professor M.M. Babaiev, cand. tech.sciences, associate professor M.H. Davydenko, cand. tech. sciences, associate professor V.V. Panchenko, Ukrainian state university of railway transport, Kharkiv

Compliance with the proper technical condition of locomotive traction motors is the key to the efficient operation of railway rolling stock. Electrical parameters of the motor winding carry information on the integrity of these windings and inter-turn insulation, the state of contacts of the power supply circuit and other circuits electromagnetically connected to this winding. To measure these parameters directly during the operation of the engine in working mode, test electrical signals supplied to the winding are used [1]. As a result, the current of one winding phase is the sum of the test current itself and the listed components acting as interference to measurements. In order to minimize the effect of these interferences even before the stage of noise-resistant secondary processing of the test signal, it is advisable to arrange it in advance in the range of current frequencies in which the spectral components of the interference have sufficiently small amplitudes. To measure the parameters of the test signal under such conditions, it is advisable to use statistical methods for estimating the parameters of the structurally deterministic signals observed against the background of interference [2].

The report discusses the technical and mathematical justification of the quantitative conclusions made, as well as estimates of the accuracy of measuring the parameters of the test signal obtained by computer modeling.

References: 1. *Ananieva O.M.* Chastotna lokalizatsiia ta otsiniuvannia parametriv syhnalu testuvannia obmotky statora tryfaznoho asynkhronnoho dvyhuna / *O.M. Ananieva, M.M. Babaiev, M.H. Davydenko, V.V. Panchenko* // Informatsiino-keruiuchi systemy na zaliznychnomu transporti. – 2023. – № 4. – P. 28 – 37. DOI: https://doi.org/10.18664/ikszt.v28i4.296413. **2.** *Kartashov M.V.* Imovirnist, protsesy, statystyka: posibnyk. – Kyiv: Vydavnycho-polihrafichnyi tsentr "Kyivskyi universytet", 2008. – 494 p.