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DETERMINATION OF OPTIMAL CHARACTERISTICS OF DEVICES FOR VOLTAGE UNBALANCE REDUCING IN LOW VOLTAGE ELECTRIC NETWORKS

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Abstract

Ways of searching for optimal ways to improve the quality of electric energy in electric networks with dispersed unbalanced loads using zero-sequence current filters are considered, which take into account the possibility of ensuring the desired performance with minimal cost and taking into account the peculiarities of operation in emergency network conditions and ensuring electrical safety of consumers. Corresponding calculations were carried out using simulation modeling. References 6, figures 4.

Key words: power quality, voltage unbalance, zero-sequence current filter, emergency modes, safety.

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References

1. Shydlovskiy A.K., Zharkin A.F., Novskiy V.O., Kaplychniy N.M., Kozlov O.V., Malakhatka D.O. Providing of electromagnetic compatibility in local electric networks. *Visnyk NTU KhPI*. 2018. No. 26. Vol. 1. Pp. 174-183. (Ukr) DOI: <https://doi.org/10.20998/2413-4295.2018.26.24>
2. Shidlovskij A.K., Novskij V.A., Kaplychnyj N.N. Stabilization of electric energy parameters in distribution networks. Kiev: Naukova dumka. 1989. 312 p. (Rus)
3. Zharkin A.F., Kaplychnyj N.N, Novskij V.A., Kozlov A.V. Features of the work of local low-voltage electric networks with artificial neutral point in non-nominal modes. *Elektricheskie seti i sistemy*. 2012. No 5. Pp. 47-52. (Rus)
4. Hurng-Liahng J., Jinn-Chang W. Analysis of zig-zag transformer applying in the three-phase four-wire distribution power system. *IEEE Transactions on Power Delivery*. 2005. Vol. 20. Iss. 4. Pp. 1168-1173. DOI: <https://doi.org/10.1109/TPWRD.2005.844281>
5. Arvindan A. N., Sanal C. Investigation for harmonic mitigation in the line and neutral currents of three-phase four-wire system feeding two-pulse rectifiers with balanced and unbalanced load using Zig-Zag transformer. *IEEE 2nd International Conference on Electrical Energy Systems (ICEES)*. Chennai, India. 7-9 January, 2014. Pp. 194–201. DOI: <https://doi.org/10.1109/ICEES.2014.6924167>
6. Shidlovskij A.K., Kuznetsov V.G. Energy quality improvement. Kiev: Naukova dumka. 1985. 268 p. (Rus)

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