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Author: Darko Brodić Alessia Amelio Radmila Janković

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Bidimensional Comparison of the Extremely Low Frequency Magnetic Field Ranges on the Laptop Surface

Darko Brodić^a, Alessia Amelio^{b,*}, Radmila Janković^c

^aUniversity of Belgrade, Technical Faculty in Bor, V.J. 12, 19210 Bor, Serbia

^bDIMES, University of Calabria, Via P. Bucci cube 44, 87036 Rende (CS), Italy

^cMathematical Institute of the Serbian Academy of Sciences and Arts, Belgrade, Serbia

Abstract

In this paper, we present a new method for evaluating the similarity of measured and predicted data which is of great importance to validate a prediction model. In particular, we provide a new similarity measure, which is used for the comparison of bidimensional arrays. The new similarity measure is employed in the context of the extremely low frequency magnetic field emitted by laptops. Accordingly, a model predicts the magnetic field levels emitted by the laptop. The experiment is performed on laptops working in normal operating condition and under stress. Measured and predicted levels are projected on the top and bottom surface of the laptops realizing bidimensional dangerousness maps. The similarity measure is used for the comparison of measured and predicted maps in normal operating condition and under stress, considering the differences in the levels and their disposition in the two maps. At the end, the similarity measure is employed for comparing different prediction models. The obtained results track a new direction in measurement and validation of magnetic field data.¹

[☆]Conflict of Interest: Author Alessia Amelio declares that she has no conflict of interest. Author Radmila Janković declares that she has no conflict of interest

*Corresponding author

Email addresses: dbrodic@tfbor.bg.ac.rs (Darko Brodić), aamelio@dimes.unical.it, Tel.: +39 0984 494783 (Alessia Amelio), rjankovic@mi.sanu.ac.rs (Radmila Janković)

¹**Abbreviation list:**

Extremely Low Frequency (ELF); Alternating Current (AC); Tjänstemännens Centralorganisation (TCO); International Commission on Non-Ionizing Radiation Protection (ICNIRP);

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