

## APPLICATION OF ISO – IEC 80000-6:2008 IN THE DESCRIPTION OF TECHNICAL SYSTEMS

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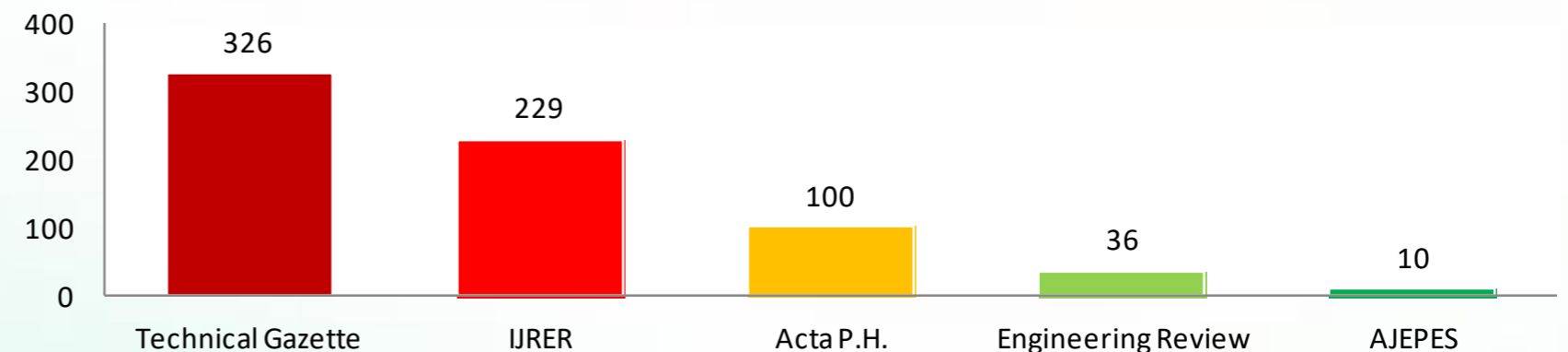
**ABSTRACT** Technical systems are described using numbers, units and mathematical expressions. Therefore, an unambiguous way of writing in accordance with the standards is extremely important. The international standard that defines Electromagnetism is ISO - IEC 80000-6: 2008 Quantities and units - Part 6: Electromagnetism, introduces order in the way of writing: names, symbols, and definitions for quantities and units of electromagnetism. In order to analyse the applicability of the standard, an analysis of published articles in five scientific journals during the year 2018 was performed. The numerical indicators of published papers, the average number of pages per paper and the percentage of elements in the papers for each of the journals are graphically presented. Finally, an assessment of the correct application of the standard in the respective journals was carried out.

### An example of quantities as described by IEC 80000-6:2008

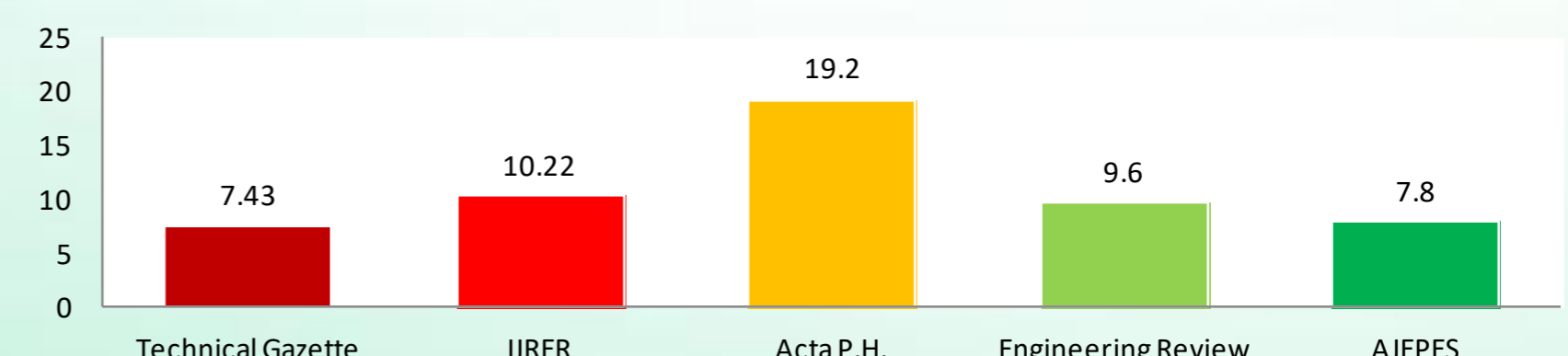
Name	Symbol	Definition and Remarks
Poynting vector	$\mathbf{S}$	$\mathbf{S} = \mathbf{E} \times \mathbf{H}$ where $\mathbf{E}$ is the electric field strength and $\mathbf{H}$ is the magnetic field strength
source voltage, source tension	$U_s$	The voltage between the two terminals of a voltage source when there is no electric current through the source. The name "electromotive force" with the abbreviation EMF and the symbol $E$ is deprecated.
apparent power	$ S $	$ S  = UI$ where $U$ is the rms value of voltage and $I$ is the rms value of electric current $U = \sqrt{\frac{1}{T} \int_0^T u^2 dt}$ $I = \sqrt{\frac{1}{T} \int_0^T i^2 dt}$
power factor	$\lambda$	$\lambda = P/ S $ where $P$ is the active power and $S$ is the apparent power.

### Evaluation of the application of IEC 80000-6:2009

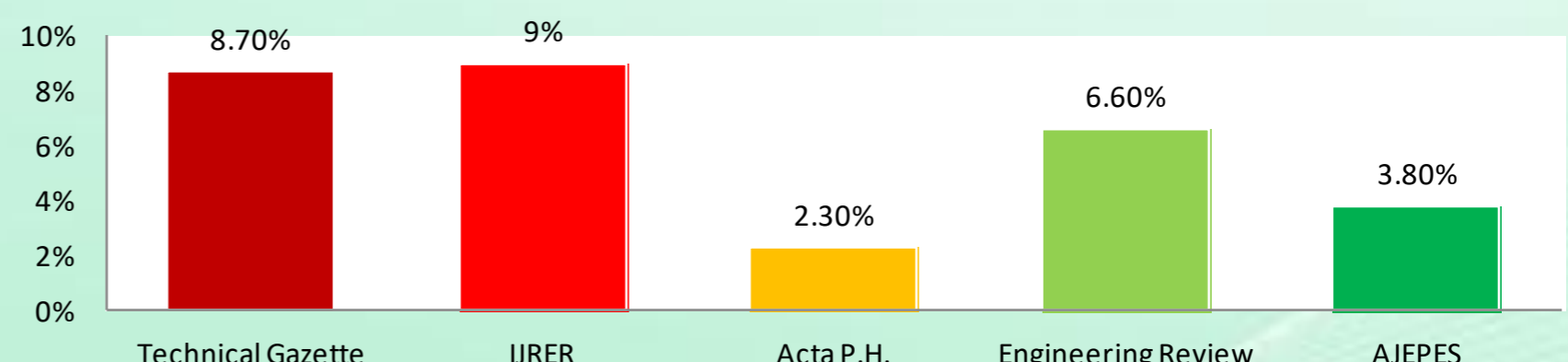
Journal	Grade
Tehnički vjesnik/Technical Gazette	5
Engineering Review	3
Acta Polytechnica Hungarica	4
American Journal of Electrical Power and Energy Systems	4
International Journal of Renewable Energy Research	4



Number of published scientific papers in the journal per year



Number of pages per scientific papers



Share of the text subject to IEC 80000-6:2008 guidelines

**CONCLUSION** The IEC 80000-6: 2008 provides examples of records of all sizes describing the field of Electromagnetism through name, symbol, definition and notes. The rules that are used in the standardisation system allow only for a brief overview on the examples of quantities described by the standard. From a handful of examples, we opted for the Poynting vector which describes the direction of energy movement, voltage source, apparent power and power factor. The application of the standard is shown on the example of five international scientific journals. The practical analysis was performed by the first author as part of the final paper and about 700 scientific papers were analysed. Taking the above into account, the conducted analysis is a subjective review and despite careful analysis, there is a possibility of deviation from the actual situation. The results of the analysis presented graphically indicate that the elements in the articles related to the standard are represented on average by 6%. The average applicability of the standard is up to 75%, and Technical Gazette is an example of full compliance with the standard recommendations.

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