

Conclusion and outlook

An assessment of the EMF around electrical installations from the perspective of the safety of workers and the general public is in most countries a legal obligation.

Because the limits vary according to the frequency of the EMF, a broad range of measurement equipment is needed. In particular the assessment of possible interaction with telecommunication necessitates appropriate measurement antennas.

If the AMPERE Scientific Committee deems it useful, at the next AMPERE conference more ample information can be given concerning the underlying scientific reasoning used by ICNIRP that explains the difference in limits for workers and the general public. At the same occasion the variety in scientific models that are at the base of the huge spread in limits, as applied by different countries, can be discussed.

For further reading

1. AMPERE Newsletter, Issue 119, 8 July 2024, pp.7-8.
2. Directive 2013/35/EU of the European Parliament and of the Council of 26 June 2013 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (20th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) and repealing Directive 2004/40/EC.

About the author



Koen Van Reusel received the degree of Master of Electrical Engineering from the KU Leuven (Belgium) in 1985, and the degree of Doctor of Engineering from the KU Leuven in 2010. Since 1992 he is at LABORELEC (Belgium), a technical competence center in energy processes and energy use. As senior expert he is member of the Power Networks Department. His current focus is on electrification of industrial thermal processes, lightning protection in wind turbines, and measuring the effects of electromagnetic fields from a human health perspective. He is visiting professor at the KU Leuven, where he teaches “Electromagnetic Processing of Materials” and “Power Quality”. Koen Van Reusel is Member of the Management Committee of AMPERE; General Secretary to UIE, the International Union for Electricity applications; Member of the Board of Directors of FISUEL, the International Federation for the Safety of the Electricity Users; and Member of the International Electrotechnical Committee n° 27 “Industrial Electroheating and Electromagnetic Processing of Materials”.

Next generation of Püschner industrial microwave applications

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At the beginning of 2023 the Püschner Microwave business has been transferred to the 3rd generation.

Founded in 1970 by former Phillipps microwave engineer Herbert-Alexander Püschner, the business was handed over to his son Peter-Alexander in 1996 and has constantly developed into various fields of industrial microwave applications ever since. With installations around the world Püschner has innovated multiple industrial heating

and drying processes for its customers. Its engineering DNA has led Püschner to multiple application product lines with the latest development being microwave assisted vacuum freeze dryers in an industrial scale specifically for biotec and active pharmaceutical ingredients.

Peter’s oldest daughter Pia and her husband Jörn (**Figure 1**), the new owners of Püschner, are deeply thankful for this opportunity to benefit from

such a vast stock of application experience and fully equipped microwave application lab. Especially as with microwaves, any new application still starts in the lab and needs to be consequently developed into production scale.

We can feel that the technology is in motion with solid state generators creating new industrial opportunities in the 2450 as well as in the 915 MHz field. Also, we are experiencing that carbon footprint reduction is an important aim for our customers and that microwaves have now the opportunity to move into even larger scale operations which were traditionally dominated by gas and fuel powered systems in the past.

We are very much looking forward to the next few years in this exciting area of electrical heating and drying and especially to the exchange of ideas and opportunities with the entire AMPERE community.



Fig. 1: From left to right, Pia Püschner, Jörn Lidde and Peter Püschner.

Report on 5 GCMEA

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A rumble of drums opened the 5th Edition of the Global Congress on Microwave Energy Applications, 5-GCMEA at the Shiiki Hall of Kyushu University, in Fukuoka, Japan (<https://www.5gcmea2024.jp/>). In fact, the conference had already started in the morning with workshops on specific topics, consisting of 30-minute oral presentations by a good number of the international experts. However, the participation of the attendees in the new type of "vibrating" message of the drums fully engaged them and highlighted

how the tradition of Japanese culture began to accompany the entire conference (**Figure 1**).



Fig. 1: Conference participants performing with drummers at the opening ceremony (more photos at <https://www.5gcmea2024.jp/gallery.html>).