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Research in Electromagnetic Compatibility Metrology

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Electromagnetic Compatibility (EMC) refers to the ability of an electrical or electronic device, equipment, system to operate, without malfunction, in the electromagnetic environment for which it has been designed. EMC is tightly connected to safety and therefore is a must. Laws and directives impose that electrical and electronic products meet EMC requirements set by technical standards before being put on the market.

As in many other fields of engineering, a vast research area exists within EMC discipline which is in support of technical standardization and industry, aimed at improving test and measurement methods and, in perspective, safety of products. This research area can be named "EMC metrology", as suggested in [1]. As any other research area, EMC metrology is exciting, challenging and never ending. A researcher in this area has the opportunity to exercise and improve abilities in mathematics, statistics, numerical calculus, theory of circuits, fields and waves, electronic design, measurement and simulation. Dissemination is naturally achieved, as usual, through publications in scientific journals and conference proceedings but also contributing to standards development and maintenance. Economic support to research can be obtained through public but also private funding. Experience of collaborative work in standardization provides full and immediate evidence that in applied research a balance should be sought for between the effort to achieve the best result and the need for vast share, applicability and sustainability. Standardization offers the neutral context within which academia and industry can have a fruitful collaboration.

I will describe my experience in EMC metrology and which are the motivations that still keep me involved in this research area.

1. F. K. Koide and F. R. Hume, "The Role of Metrology in Electromagnetic Compatibility," 1968 IEEE Electromagnetic Compatibility Symposium Record, Seattle, WA, USA, 1968, pp. 159-181, doi: 10.1109/TEMC.1968.4307131.