ELECTROMAGNETIC COMPATIBILITY HANDBOOK

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CRC Press, Taylor and Francis Group, end Sept. 2004
2600 p. B5, 2300 tabs. and figs., ISBN: 0-8493-2087-9

The *size* of the book authored by K.L. Kaiser is impressive. Given the size, one looks at the content to see the contributors, and finds out that the whole book is *written by one single person*. How much time the author needed to achieve it?! And what a wide view, knowledge and references!

There are more and more electrical devices in use, hence grow the challenges of ensuring the electromagnetic compatibility (EMC) of products and systems.

The book *is useful for all the designers of electronic equipments:* electrical and electronics engineers, technicians, professors, teachers.

The content covers *much more* than EMC. The title should be "All you should know to really master EMC". It is an Encyclopaedia of Radio Engineering.

It mentions basic theory, then takes shortcuts to reach last practical consequences ; a typically American approach. The presentation is compact, useful in all applications, with many figures, tables and graphics, no design examples and only short explanations. It is ideal for quick reference, more than as a textbook for courses. The author has either derived from basic principles or obtained and verified from their original sources all of the expressions in the tables. Mathcad was used to generate most plots and solve many equations. The author includes the Mathcad programs for many of these, so users can clearly see the variable assignments and assumptions.

Thin "Bible" paper makes the book appropriate for personal use, not for libraries. Hence, it has been also published by CRC Press, Taylor and Francis Group, in Sept 2005, split in three volumes, as to be harder and on narrower domains:

Transmission lines, matching and crosstalk
448 pp. B5, ISBN: 0-8493-6362-4

Electromagnetic Shielding
336 pp. B5, ISBN: 0-8493-6372-1

Electrostatic Discharge
344 pp. B5, ISBN: 0-8493-7188-0

The Electromagnetic Compatibility Handbook is a wide compilation of many approximations, guidelines, models, and rules-of-thumb used in EMC analyses, with their sources and their limitations. The book presents them in an efficient question-and-answer mode that leads straight to the core of each topic.

This book covers all the key topics involved in EMC:

– decibel expressions, fast Bode magnitude and phase plotting, transient behavior in the time and frequency domains, spectra of periodic and aperiodic signals,

– non-ideal R L C, magnetic coupling and transformers, magnetic materials, baluns and balanced circuits, passive electric filters, electrical equivalent length, transmission lines and matching, wire impedance, cable modeling, skin effect, cable shielding and crosstalk,

– EMI sources, radiated and conducted emissions and susceptibility, antennas, test chambers, electrostatic discharge, air breakdown, plane wave shielding, electric and magnetic field shielding, grounding, circuit board layout for EMC.

Including basics but also discussions and derivations never published before in book form *guarantees that the book will be useful for many years ahead*, even for these fast-evolution domains, as electronics and aerospace technology.

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Electromagnetic Compatibility Handbook. J. L. Norman Violette Ph.D., Donald R. J. White MSEE, Michael F. Violette BSEE (auth.) Year: 1987. Â Electromagnetic compatibility handbook. Includes bibliographies and index. I. Electromagnetic compatibility. I. White, Donald R. J. II. Violette, Michael F. III. The purpose of the Handbook is to provide practical and helpful information for Electromagnetic Compatibility in the development of spacecraft equipment and systems. It gathers experience, know-how and lessons-learnt from the European space community with the aim to assist engineers throughout the design and development phases. The Handbook discusses system level activities and suggests design techniques, analyses and test methods.