

# Preface

Back in 1992, I was teaching an in-house EMC seminar at a major manufacturing facility and my students were so interested to learn more; they wanted me to extend the class. My search for more material led me to Michel Mardiguian's new book, the first edition of *Controlling Radiated Emissions by Design*, and I've included it and its second edition in my seminars ever since. There are several reasons for this.

First is that the goal of my seminar is to help students think through designing an EMC compliant product from the beginning to the end, and this is exactly what Michel's book does. It starts by explaining why we need to understand the problems of radiation and how radiation happens, along with some simple mathematics for predicting the emissions and harmonic content. Michel uses graphs to further simplify the calculations. He then discusses the strategy for designing a low radiated emission product, both in the choice of circuit technology and circuit board design and all the decisions one needs to make when beginning a design. He then shows how to minimize emissions from cables and packaging. He next develops shielding, including predicting leakage from various types of apertures with real-life examples, using the emissions already predicted from our circuits in the book. He then concludes the book by showing how to troubleshoot a product when it doesn't comply with its emission requirements, including the use of a current probe to predict the reduction in emissions.

Michel is a practitioner, one who actually uses what he writes about in his consulting practice. This gives the reader a process that he/she can use to expand themselves in the field of EMC.

Secondly, instead of ending a chapter by providing problems for the student to figure out on their own, Michel gives sample problems within the text and shows step-by-step solutions to them. Our students have found the procedures and equations developed in the book so beneficial that we have developed several computer programs which allow the design engineers to repeat the calculations quickly and repeatably as they are designing their product.

Thirdly, Michel explains EMC design concepts that are easy to understand and to follow. After developing the EMC concepts, he intersperses practical examples

allowing the students to use what they just learned. These examples are rare in textbooks.

I use Michel's book during my class to supplement my own teaching materials, and I also give each of my students a copy of the book for later reference. It is also an excellent book for individual use outside the classroom.

After teaching, I give students an opportunity to sit down with an EMC expert and discuss one-on-one their own product or concerns. While doing so, one student once said, "I would not even have understood what you are talking about had I not just taken your class. Now I see what we have been doing wrong." What more needs to be said about Michel's book, seeing how it affected this student and many others like him!

Michel Mardiguian has had a distinguished career with extensive EMC experience working in the honored positions of IBM EMC Specialist, French Delegate to the CISPR Group on Computer RFI, and Director of Training for Don White Consultants. He has written many widely read books and articles and has given many lectures on EMC topics. In 2007, he received the IEEE EMC Society's prestigious Technical Achievement Award.

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