

# Preface

When most electronic circuit design engineers think of electromagnetic compatibility (EMC) they probably think of mains filters, shielded boxes, antennae measurement systems and consider it is mainly the preserve of the radio engineer. This closeted vision of EMC is part of the reason for writing this book, it is not only simplistic, but extremely dangerous to the long-term employment prospects of such thinkers.

At the present time EMC is sending shivers down the spine of all original equipment manufacturers (OEMs), worrying about the prospect of their products being withdrawn from sale in the European Community (EC) market-place due to non-compliance with the EC EMC directive (89/336/EEC). Presently, those people who sell mains filters and shielded boxes are probably making a fortune out of the panic and paranoia surrounding the implementation of this directive. Eventually, it will dawn on some manufacturers that their competitors are producing similar products that are far less expensive than their own and meet EMC directive requirements, without having to install mains line filters or using shielded enclosures, complying due to correct design at the component and printed circuit board (PCB) level.

Whenever a chart is brought out to describe the best and most cost-effective way to produce a product, whether it be for EMC or any other criteria, time and money spent at the earliest design stages always bring about the greatest rewards for the lowest cost. The benefits of implementing correct EMC procedures at the component and PCB stages are not only in the financial gains in production costs, the final equipment will be less expensive hence more competitive, and the time to market will be reduced.

The economics can be examined quite simply by considering any circuit board you have to hand, let's look at a PC as an example. Imagine here are 100 integrated circuits (ICs) on the PC, to decouple every single IC at each device will cost about £1 in total, this may be all that is required to reduce the conducted noise to within the EMC regulations. How much would it cost to fit a mains filter? Most likely in the region of £5. At the PCB level the savings are even greater as there should be no parts cost penalty for following the rules specified in this book. It may even be possible to reduce the parts cost as less decoupling or filtering may be required in the final circuit due to improved PCB layout.

In today's cut-throat, price-sensitive electronics market every penny saved can be the difference between being a market leader and going broke. With cost-effectiveness and time to market prime concerns, there can be no excuse for not following the basic good design practices preached in this book to give your circuit the edge over your competition and improving your chances of meeting the EMC regulatory requirements first time.

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