Preface

Liquid crystal displays (LCDs) are used for a wide variety of information displays, for example LC-TVs, personal computers, mobile phones and car navigation systems. Thus, LCDs as electronic display devices have become a part of everyday life. There are two categories of electronic information displays: one is an emissive type such as CRTs, PDPs, ELDs, OLEDs, LEDs and FEDs, and the other is a non-emissive type such as LCDs, electronic papers and hard copy printings. In the case of LCDs there are the direct-view types and the projection types. Further, the direct-view types can be divided into three categories: with backlights, without backlights and a hybrid trans-reflective type which operates with or without backlights depending on the environmental lighting conditions.

The flat panel display global market in 2008 was approaching US$ 100 billion. Among this LCDs occupied a 93% share. Most LCD devices need backlight units. There are three important issues for the backlight units: first, a reduction in the backlight power is urgently needed since the power consumption of a backlight unit uses 70 to 80% of the LCD module; second is a reduction in the cost; and finally, to the establishment and maintenance of adequate supplies.

The purpose of this book is to promote research and development, so that better backlight units can be manufactured through improvements to their optical and electronic characteristics. Worldwide authorities have discussed the state-of-the-art technologies for the backlights and their systems in this book. We shall be able to contribute to the ‘Save Our Earth’ program through 3R (recycle, reduce and reuse) activities. The editors believe that this book, as one of the Wiley–SID book series, will be useful to readers who are inter-
ested in flat panel displays. The original Japanese version of the book was published by Science & Technology Co., Ltd, in the Japanese language.

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