
POWER SAVINGS IN BACKLIGHTS

Wednesday, June 7 / 10:40 am – 12:00 pm / Room 135

Chair:

Sungkyoo Lim, Dankook University, Choongnam-do, Korea

Co-Chair:

Masaru Suzuki, Eastman Kodak Co., Rochester, NY, U.S.A.

26.1: Low-Frequency Square-Wave Drive for Large-Screen LCD-TV Backlighting Systems (10:40)

M. Doshi and R. Zane

University of Colorado at Boulder, Boulder, CO

F. J. Azcondo

Universidad de Cantabria, Santander, Spain

A low-frequency square-wave drive, consisting of a single high-voltage converter, ac lamp ignition circuit, and current regulation circuit, capable of driving an arbitrary number of parallel lamps with independent accurate lamp current regulation, will be presented. Experimental results are presented, demonstrating ignition and dc current regulation for four 250-mm CCFLs connected in parallel.

26.2: Distinguished Paper: Brightness Preservation for LCD Backlight Reduction (11:00)

L. Kerofsky and S. Daly

Sharp Laboratories of America, Camas, WA, U.S.A.

Image processing can compensate for backlight dimming in an LCD. A low-complexity approach which replaces hard clipping with smooth roll-off is proposed. A high-quality approach preserves highlight detail. Image quality is improved and power savings can be increased by more aggressive backlight dimming.

26.3: High-Performance EEFL Backlight Systems for Large-Sized LCD TVs (11:20)

J-B. Kim, J-K. Kang, J-H. Yoon, J-W. Hong, B-K. Jeong,

B-C. Ahn, and S-D. Yeo

LG.Philips LCD, Gyungbuk-do, Korea

In an EEFL backlight system, the power consumption was reduced by 30% compared to that of previous CCFL systems. The luminous efficiency of a thin (3-mm-diameter) EEFL is 8.7% greater than that of a conventional (4-mm-diameter) EEFL. A differential diameter external electrode fluorescent lamp (DEEFL) was developed, which enables electrode length reduction compared to a conventional EEFL.

26.4: Algorithm for Contrast Reserve, Backlight Dimming, and Backlight Boosting of LCDs (11:40)

J. H. Stessen

Philips Applied Technologies, Eindhoven, The Netherlands

J. G. R. van Mourik

Philips Consumer Electronics, Eindhoven, The Netherlands

An algorithm for controlling the signals to an LCD panel and its backlight is presented. The goal is to maximize the signal to the display and to effectively perform dynamic backlight dimming. The average power can be limited, and for occasional bright scenes the backlight can be boosted significantly.

LUNCH (12:00–2:15)

AUTHOR INTERVIEWS (6:30–7:30)