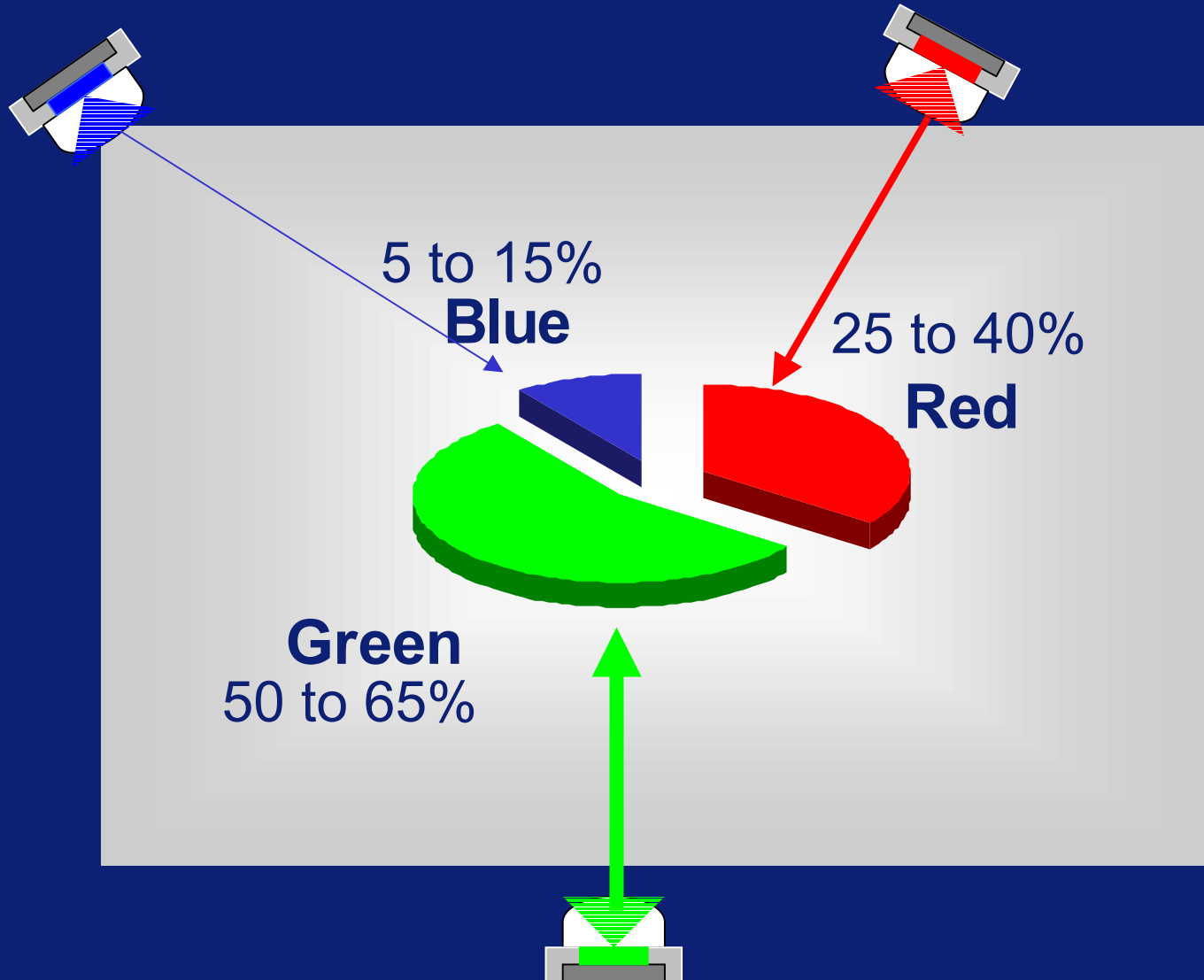


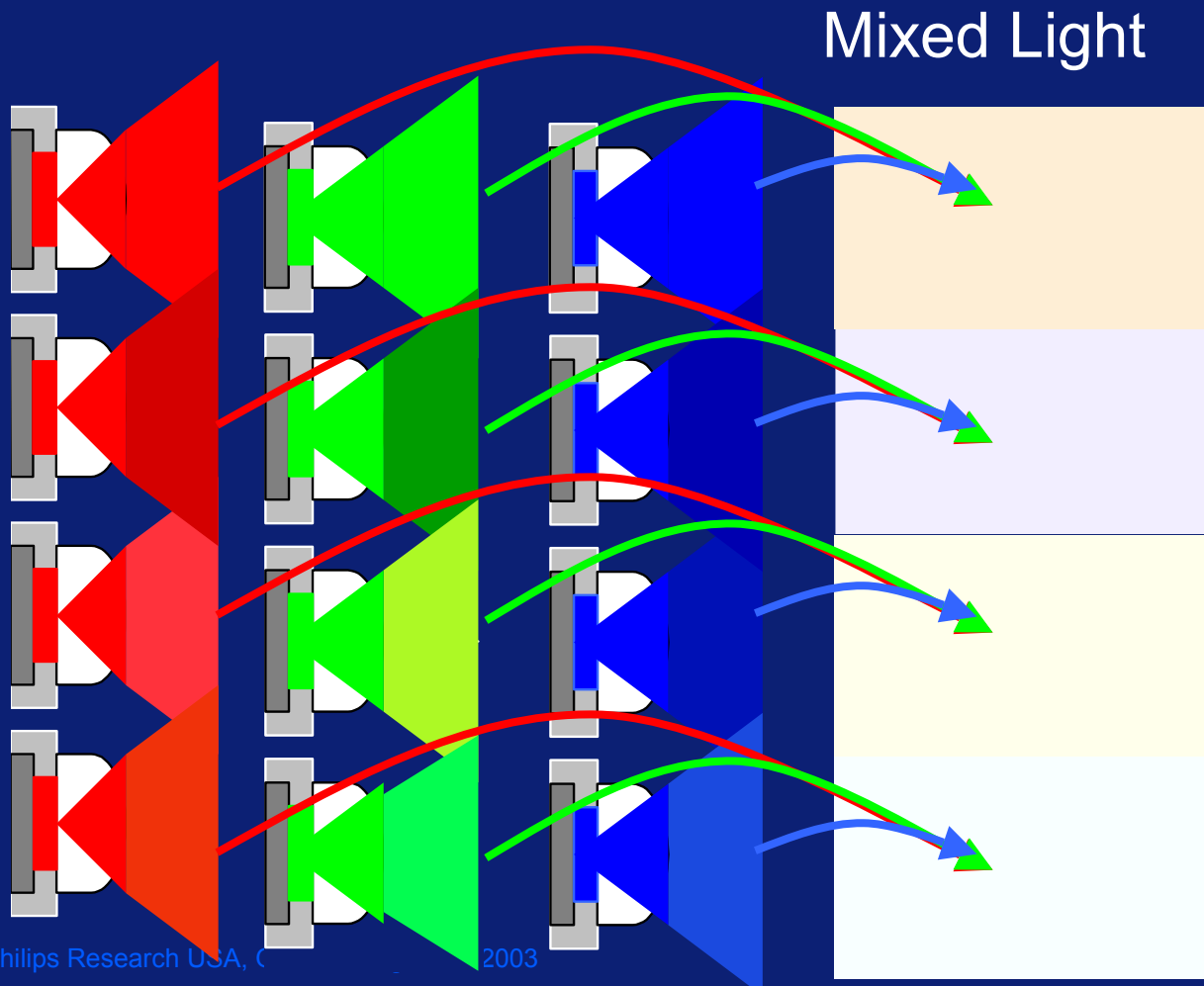
PHILIPS

LED Systems

Composition of RGB LED lights in white light



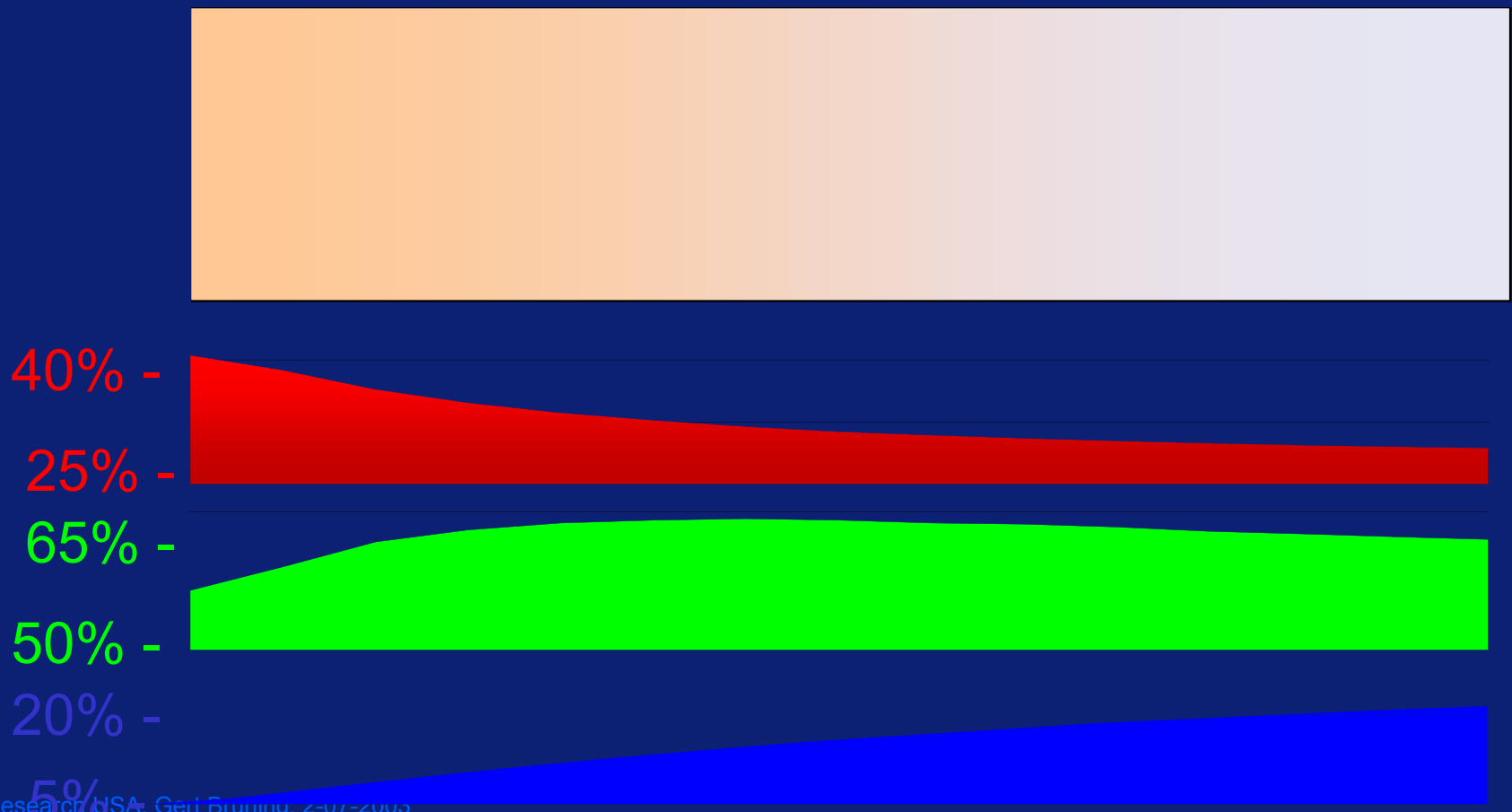
Color and Lumen variation between individual devices



- 1) Color non-uniformity
- 2) Variability in products

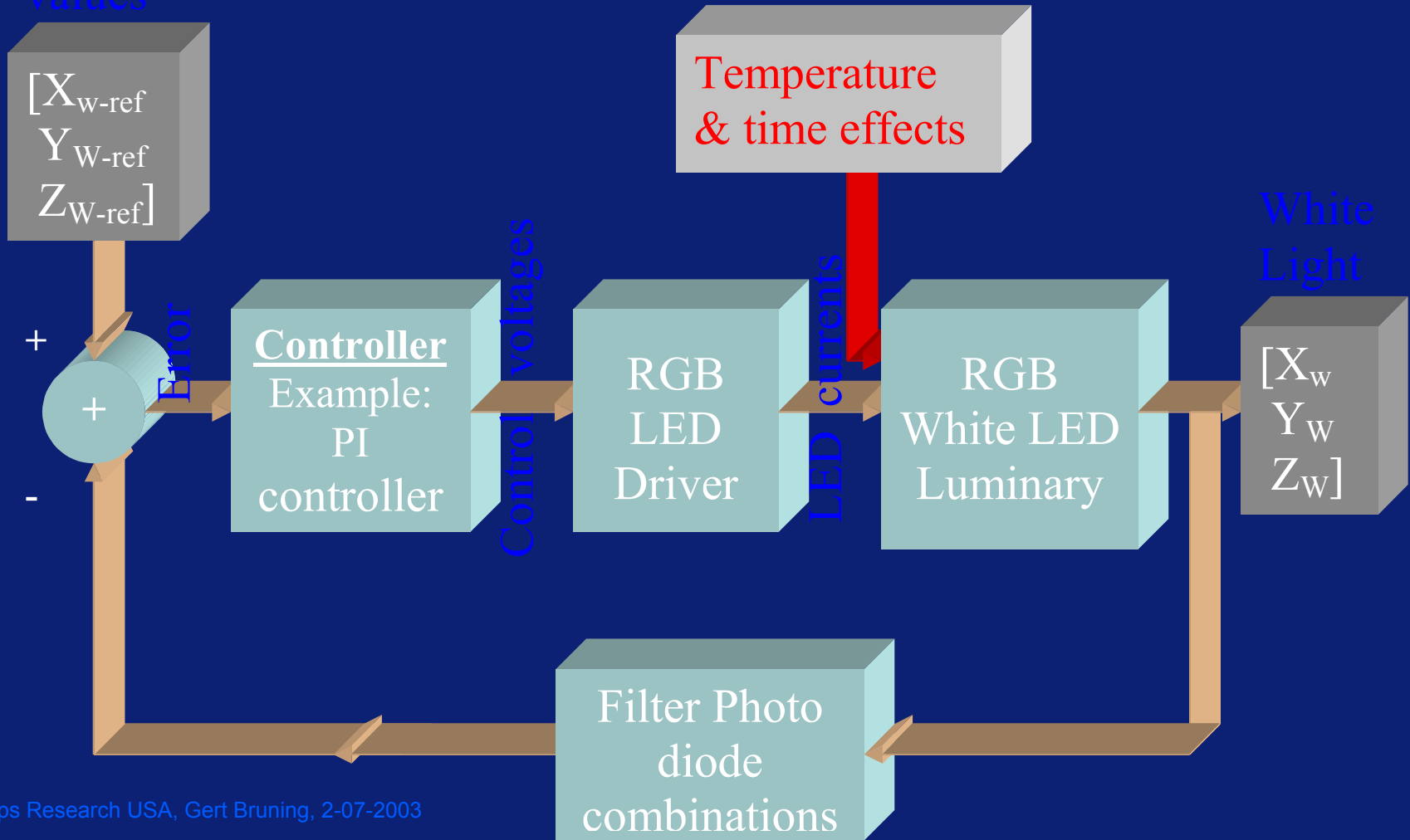
Color's of white light - Color Temperature

Warm White - Incandescent Cool White-Fluorescent Daylight White $T_c = 9500^\circ\text{K}$

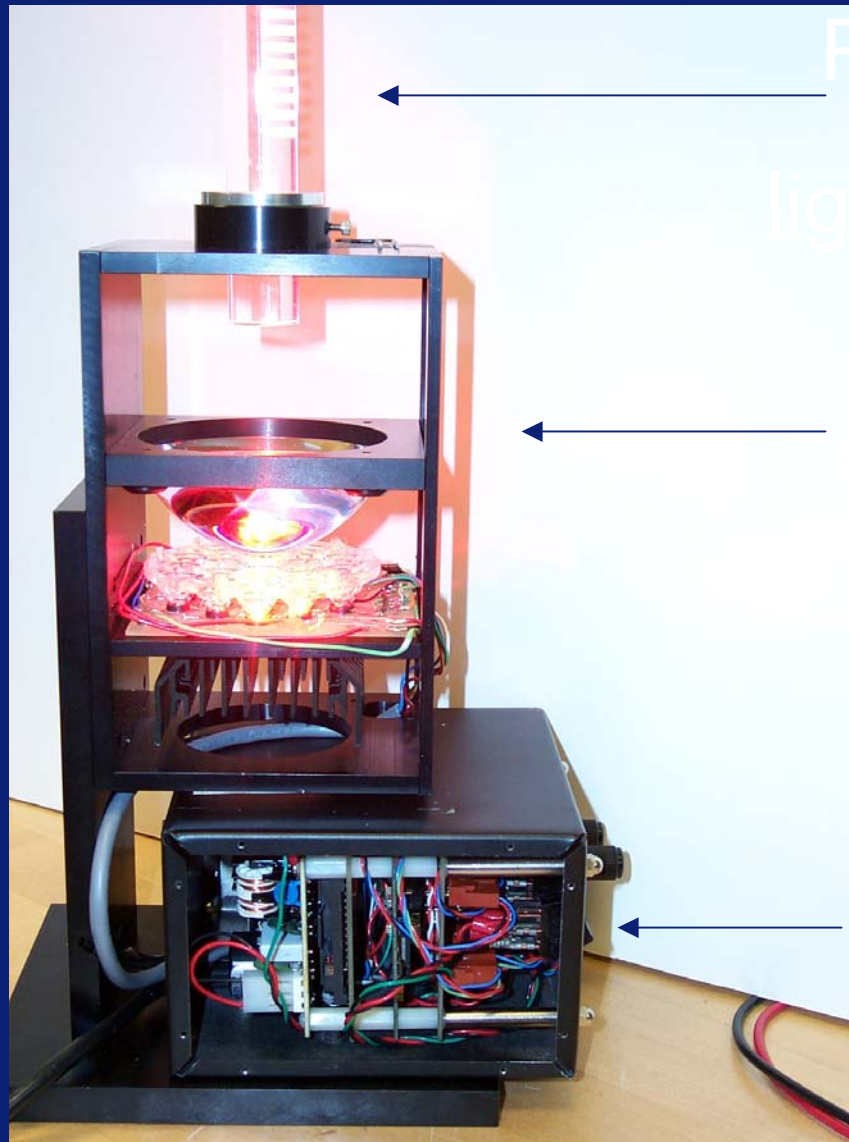


Tristimulus Feedback Control System

Reference
Tristimulus
values



Light engine

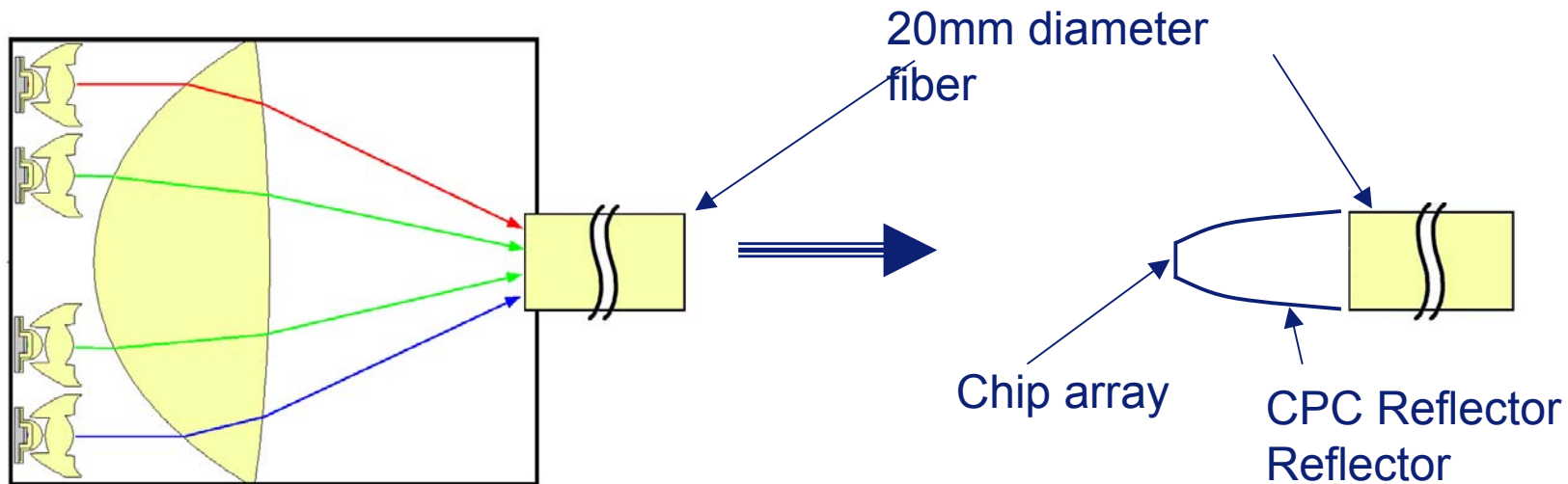


Plastic rod for
light distribution

Optical part

Electronics

LED Light Engines



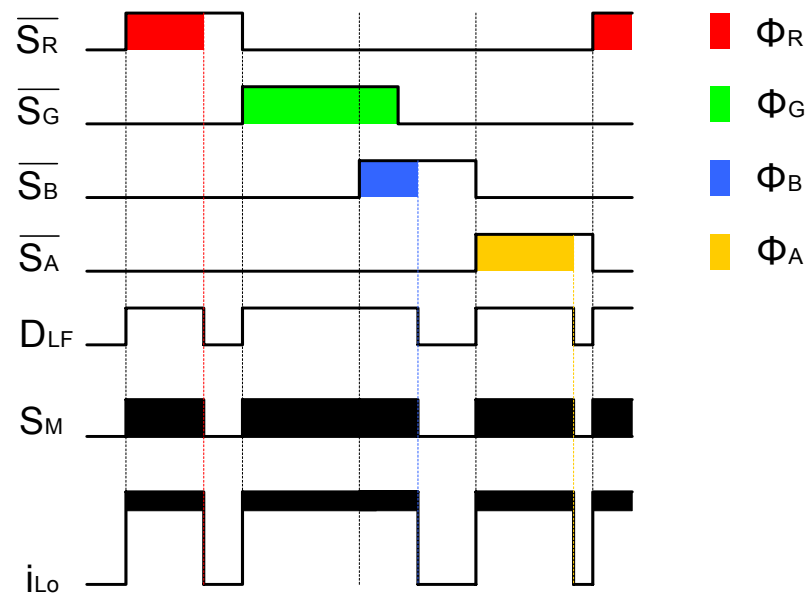
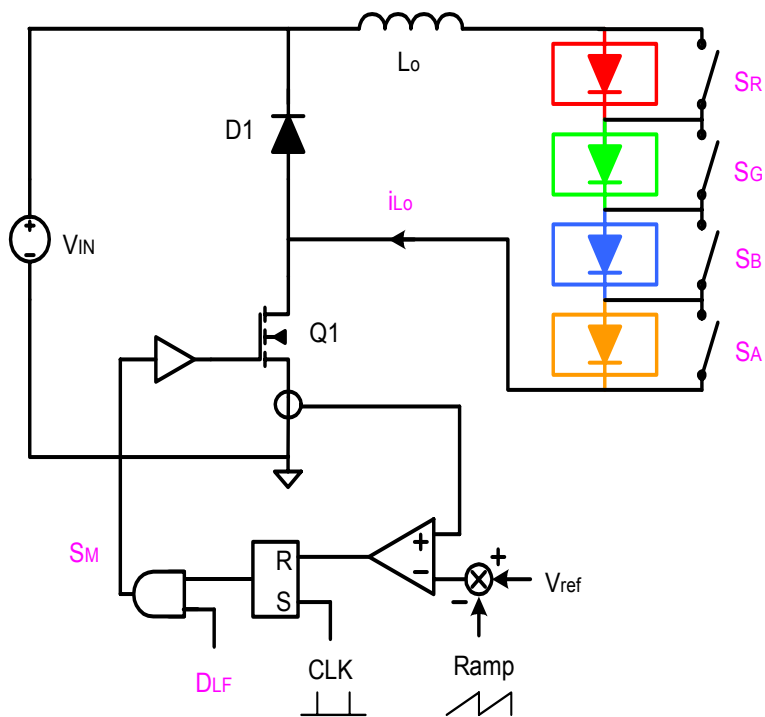
**Single-chip
LED
Packages**



**Multi-chip
LED Package
Package**

A simple and efficient driver for 4-color LEDs

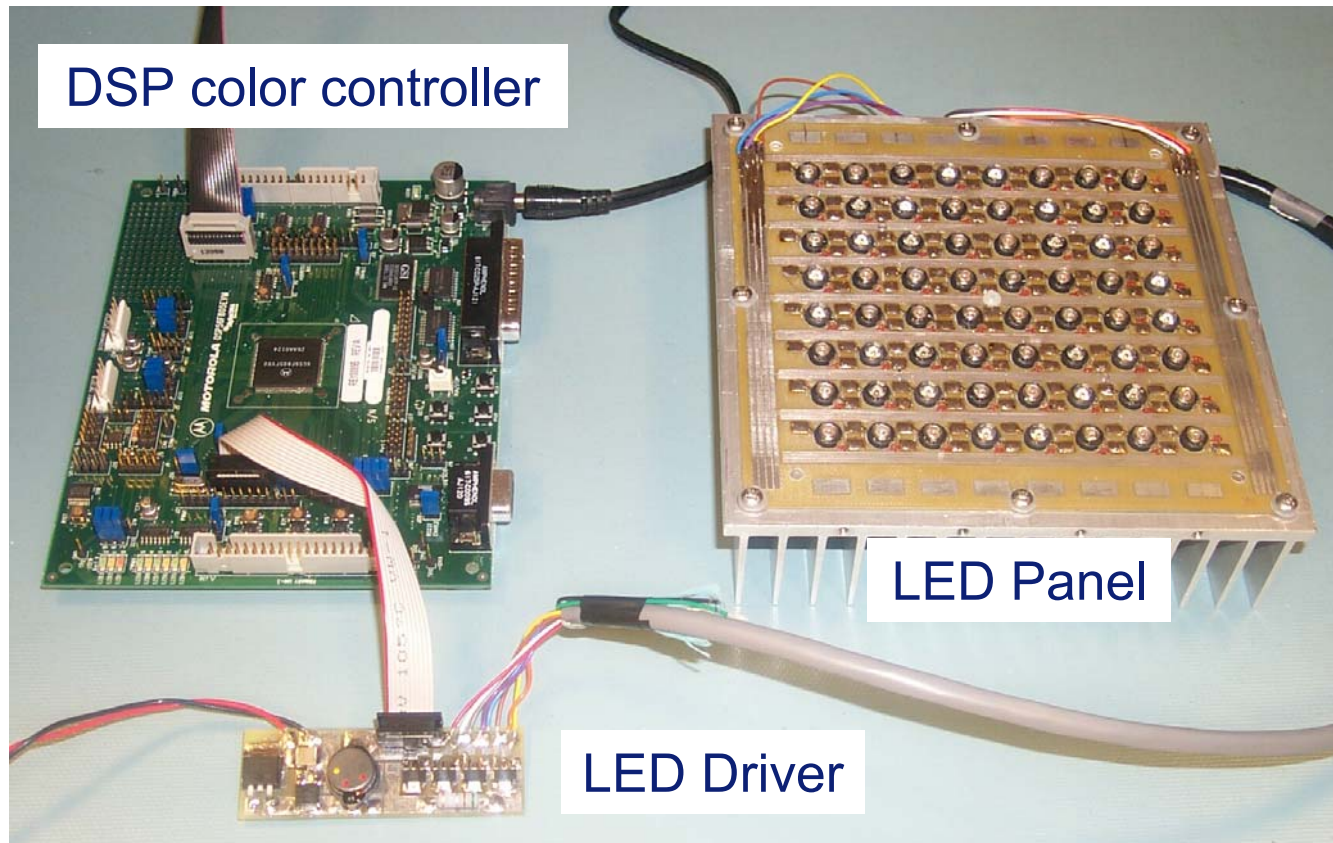
- One driver for all 4-color LEDs
- Minimized component parts
- Dual PWM operation
- High efficiency



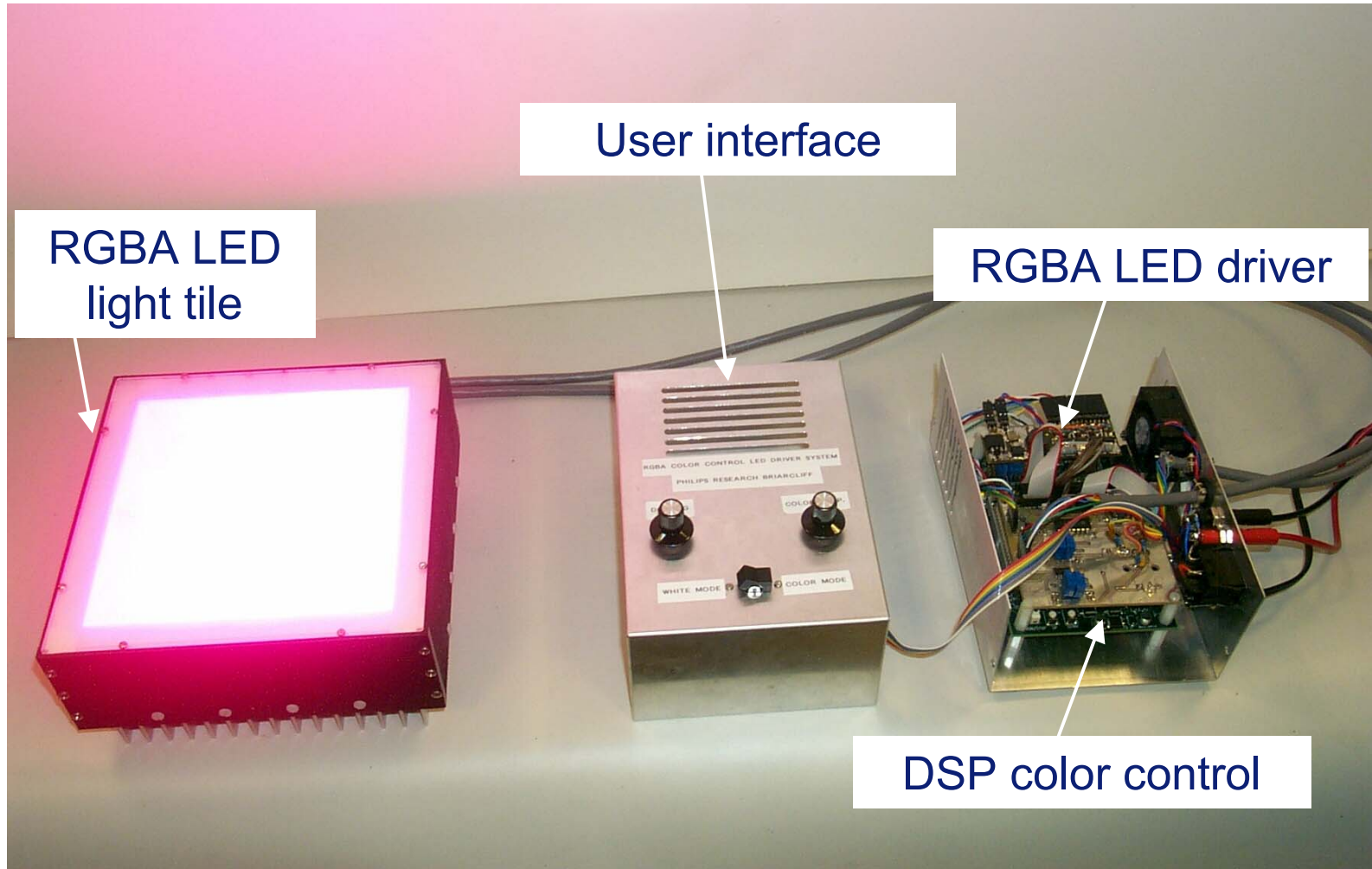
if $\Phi_i < 0.25$, $\bar{S}_i = 0.25$, $i = R, G, B, A$
 if $\Phi_i > 0.25$, $\bar{S}_i = \Phi_i$, $i = R, G, B, A$

Portable Demo Unit for Whit Light Source

- CRI > 90, ~1000 Lumen, CCT from warm white (~2856 K) to cool white (~4200 K), dimming control: 5~100%.



RGBA LED Light Tile Demonstration



Measurement in Integration Sphere

