A Solid-state Light Bulb
with AC Converter (CP2-05)

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Brief Introduction

In this project we developed streetlight luminaries using high-current LED modules:

- Consists of 18 or 26 Luxeon Star high-brightness LEDs, each takes a DC current of 350mA
- Significantly more efficient than a streetlight currently in use
- Meets brightness requirement in the road lighting standard BS EN 13201
- Our Intel 8051 microcontroller emulates the operation of a Photo Electric Control Unit (PECU) of a actual streetlight, with Pulse-Width Modulation dimming
- Meets relevant waterproof (IP 54) and other electrical and mechanical safety standards (BS EN 60598)
- Time Switch
- AC/DC adapter meets RF Interference standard BS EN 61000-3-2
1) The whole system  
2) Intel 8051 and Analogue-to-Digital converter  
3) brightness measurement  
4) Italian lantern with HV9910  
5) The LEDs inside  
6) LED driver circuit  
7) Basic AC/DC converter with EMI filter

Our AC/DC Adapter
The HV9910 solution provided by Supertex Ltd only consumes 9W, which is 30% more efficient than an energy saving bulb.

Luminosity at 5m distance ≈ 9-10lux, which meets the basic lighting requirement in BS EN 13201.

Junction temperature saturates at 60°C after 1½ hours.