



### Summary

Huizhou city is replacing 20,000 HPS streetlights with LED luminaires that deliver the highest efficacy and reliability at a competitive price.

### Challenge

Provide an energy efficient, flexible solution for streetlights throughout Huizhou city, where pole heights vary from 5–14 meters and flux requirements vary from 6,000–22,000 lumens.

### Solution

Install four LED luminaires that deliver 6,460, 9,975, 16,150 and 22,610 lumens initial flux and efficacy exceeding 95 lm/W at 3000K and 70CRI — using LUXEON T emitters.

### Results & Benefits

Huizhou ForYou LED luminaires feature an expected lifetime of 10 years (L70 of 60,000 hrs), leading to less interruption along busy roadways to replace streetlamps, 60% less energy consumption and 60% less CO<sub>2</sub> emissions.

# LED Streetlights Suit Huizhou

Four types of luminaires from Huizhou ForYou Optoelectronics Technology Co., Ltd. utilize a modular design to meet the high lumen output and efficacy requirements for pole heights ranging from 5 to 14 meters (16 to 50 feet). The luminaires incorporate LUXEON T LEDs from Lumileds, the workhorse emitters for highest efficacy in directional, high flux applications.

## Challenge

Huizhou city is located in southern China, in the central Guangdong province and close to Hong Kong. This is home to the latest retrofit of 150-400W high pressure sodium (HPS) streetlights to energy-efficient luminaires. The goal of the project was to upgrade 20,000 existing streetlights in a 1:1 fashion to Huizhou ForYou Optoelectronics luminaires with LUXEON T LEDs.

High luminaire reliability, high energy efficiency and low net system cost were the key requirements for this project. In addition, because the roadways feature HPS lamps with varying pole heights (5–14m), different luminaire and secondary optical designs were needed to meet the various light distribution requirements.

## Solution

HPS lamps that draw 150W, 250W, 400W and 550W were replaced with four models of Huizhou ForYou Optoelectronics IP68 LED luminaires. The different roadway conditions called for both 3000K and 4000K color temperature and a minimum color rendering index of 70. The four luminaires used were the T3B-2 IP68 LED streetlight (68W), the T3B-2 IP68 LED streetlight (105W), the T3A-5 IP68 LED streetlight (170W) and the T11A-7 IP68 LED streetlight (238W), which deliver an initial luminous flux of 6460 lumens, 9975 lumens, 16150 lumens and 22610 lumens at 3000K CCT and 70CRI, respectively. All models feature tool-free onsite maintenance, and a honeycomb briquette design for effective heat dissipation from the LEDs.



According to Huizhou ForYou Optoelectronics, Lumileds was chosen to partner on this project due to its superior technical support and application support. The LED emitter used, the LUXEON T, and the specifications it meets, were only the first steps in luminaire development. Consistent delivery of these specifications was ensured by both design verification at the component level and alignment of LM-80 data between Huizhou ForYou Optoelectronics and Lumileds. Huizhou ForYou Optoelectronics further performed burn-in testing of all emitters and sample testing of system performance parameters for quality control.

## Results & Benefits

LUXEON T LEDs feature an L70 lumen maintenance lifetime of 60,000 hours relative to 15,000 hours for HPS. HPS bulbs also typically deliver an efficacy of 60 lm/W versus 95 lm/W at the LED luminaire level for a 3000K luminaire at 70CRI. Color consistency of the emitters is delivered within a single 3- or 5-step MacAdam ellipse.

Another way that reliability and yield of these luminaires was improved was by upgrading the SMT (surface mount technology) assembly equipment, solder reflow ovens and x-ray inspection systems used by Huizhou ForYou Optoelectronics. By improving the SMT process control, functional yield was even more optimized.

“Huizhou ForYou Optoelectronics invested in new equipment so that we could switch over to SMT production and therefore raise the yield and productivity of our luminaires.”

— Mr. HuiQing Deng, Vice GM  
Huizhou ForYou Optoelectronics



## About Lumileds

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For 100 years, Lumileds commitment to innovation has helped customers pioneer breakthrough products in the automotive, consumer and illumination markets.

Lumileds is shaping the future of light with our LEDs and automotive lamps, and helping our customers illuminate how people see the world around them.

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