

Advanced Lighting

Compact On-Board Lighting Systems

The directive for greater safety has necessitated the development of complex, integrated vehicle systems. This, in turn, has placed an even greater burden on crash testing facilities to provide extensive amounts of high quality data. Modern high-speed digital cameras, developed to meet this challenge, continue to push the resolution and frame rate envelope. These cameras, however, must be integrated with proper lighting to attain their performance potential.

The introduction of side curtain airbag systems, more sophisticated belt restraint systems, and more complex interior designs has driven the need to develop systems to record their performance in both simulated and actual vehicle crash tests. To accomplish this, cameras must now be located in many areas that are difficult, or impossible, to illuminate using exterior lighting systems.



High speed, high resolution digital video dictates the use of new technology lighting systems. The latest CMOS camera technology can deliver significantly higher resolutions and light sensitivity, along with increased color fidelity. To achieve this, it is essential to replicate natural sunlight as closely as possible. The definitive criteria are color temperature and CRI (color rendering index). Additionally, as frame rates have increased, it is more important than ever to ensure stable, flicker free lighting.

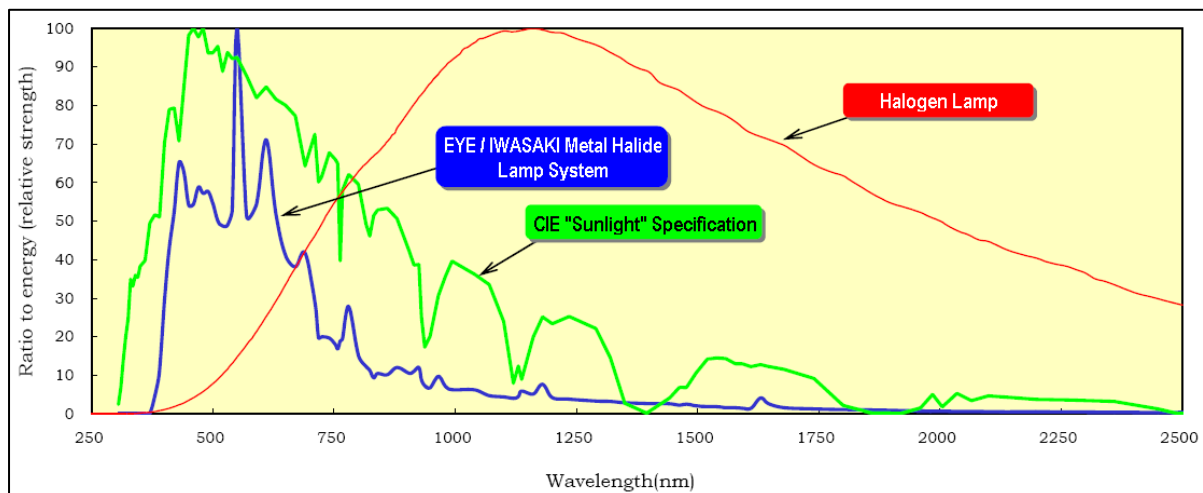


Figure 1: Spectral Distribution Comparison

In facilities where many kinds of testing, such as frontal impact, side impact, and roll-overs must be performed using the same equipment, system flexibility is essential. The camera lighting system needs to be properly positioned to ensure uniform illumination for each different test setup.

Working with key customers, EYE / Iwasaki has developed a compact on-board lighting fixture to solve most of these application problems. The new EYE / Iwasaki on-board lighting system utilizes proprietary metal halide lamp and electronic inverter technology.

High output metal halide systems are much more efficient than halogen systems, producing about five (5) times the lumens/Watt. Much lower power is required to achieve the desired illuminance level. Additionally, the lower energy consumption and lower heat output protect against interior and test dummy heat up.

Key features of the new EYE / Iwasaki on-board system include:

- Compact high strength package – tested during operation to 100G
- Choice of High intensity 70W or 150W metal halide lamps
- Up to 96 CRI and 6500K provides true natural sunlight simulation
- 12V or 24V electronic inverter for safe on-board operation from existing power sources
- Instant re-strike for rapid set-up and test configuration
- Optional Spot or Flood reflectors for set-up flexibility

Crash testing is time consuming and costly, yet, the need for more testing and for new kinds of testing will continue to increase. A properly integrated lighting system will significantly increase test productivity while decreasing operational and maintenance costs. EYE / Iwasaki is unique in its capability to design and manufacture application specific lamps, fixtures, electronics and control systems specific to the needs of high-speed crash test filming. The company's innovative designs are a culmination of years of global crash test application experience. Engineering, installation and service / maintenance personnel, located at the company's manufacturing operations in Mentor, OH, ensure prompt application support and trouble free project implementation.

Further Information

Contact EYE Lighting International:

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EYE Lighting International of North America is located near Cleveland, Ohio, a manufacturer and distributor of state-of-the-art High Intensity Discharge and Halogen lighting products to serve commercial, industrial, utility and retail markets around the globe.

EYE Lighting International of North America is a subsidiary of Iwasaki Electric Co. Ltd., a Tokyo based, technology driven lighting conglomerate, that manufactures more than 3,000 lighting products that include HID and Halogen lamps, lighting fixtures, electronics, communication equipment, ultraviolet and electron beam systems.

The shared culture of Iwasaki Electric Company and EYE Lighting of North America represents a world class manufacturing operation, global technology, and commitment to quality, new product development, and the goal of complete customer satisfaction. At Iwasaki, we are inspired by light, and the light we create tells our story.