



Testing High Volume LED Luminaire Builds

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The demand for LED luminaires is growing exponentially. For example, a major Midwest city recently ordered several hundred thousand LED luminaires to replace street lights. Lower operating costs of LED luminaires is driving both commercial and consumer demand. Other attributes of LED luminaires include better and more uniform illumination and the ability to tailor the color of the LED's to the correct mixture for the individual applications. All of these are major advantages over the use of sodium vapor lamps or traditional incandescent bulbs.

Increased demand for LED luminaires requires manufacturing operations to adapt to improved quality testing methods that can provide the quality measurements and not slow down the production lines. The LED luminaire business is extremely competitive and controlling manufacturing costs is essential.



Traditional quality control testing of medium- and large-size luminaires uses 6- to 10-foot integrating spheres and an FDC / DOE standard testing process that can only be accomplished on a sampling basis. But the value of high volume production lines is just that, the ability to produce a large amount of product efficiently and at the lowest cost. A sampling testing process is the reverse: a large amount of defective product can be produced quickly and, if not identified prior to shipment, can involve major return and rework expense.

To meet the demand for high volume, Ophir developed [FluxGage](#), an instrument for testing luminaires rated from 1,000 to 40,000 lumens on the production line. FluxGage is based on an innovative design that allows complete measurements to be completed in seconds. Measurements that were heretofore conducted on a sampling basis inside an integrating sphere, can now be accomplished on the production floor, quickly, easily and comprehensively.



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FluxGage tests for:

- Lumens up to 40,000
- Color: CCT, CRI, Duv, and Chromaticity
- Flicker

The value of using FluxGage is its ability to take key measurements quickly, but also to allow the manufacturing operation to test the entire luminaire as a fully performing, operational lamp. This



process calls for the lamp to be positioned onto the FluxGage, turned on, measurements take, and quality data is immediately compared against standards.

This is the first practical approach to testing the finished LED luminaire product for its full operational performance. One manufacturer is using FluxGage to identify potential errors: one related to a vendor part, a second connected to the insertion of the incorrect component in the line. By measuring both, the manufacturer is able to recheck the product lots of luminaires and ensure, through whatever rework may be required, that the product shipped will meet the customer's specifications.

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