

## Solid-State Lighting Module (SSLM)



Energy-Efficient  
Lighting System

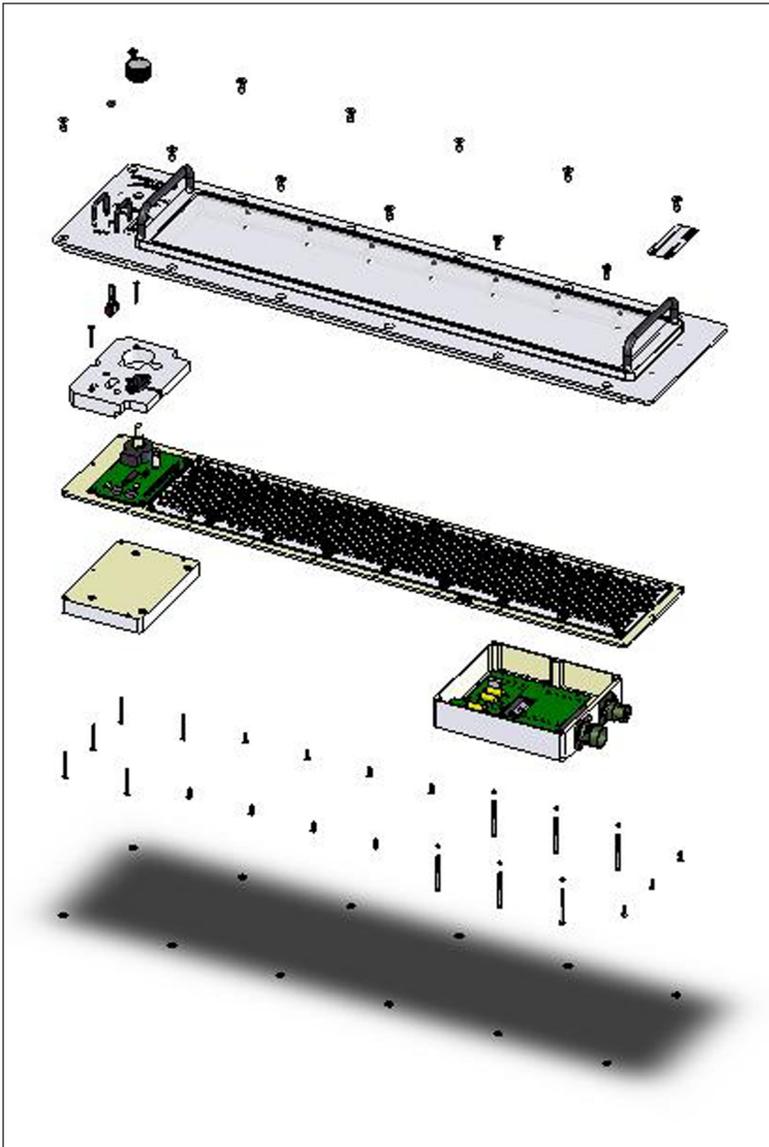
The project's goal was to build a light-emitting-diode (LED)-based light fixture that is identical in fit, form, and function to the existing International Space Station (ISS) General Luminaire Assembly (GLA) light fixture and fly it on the ISS in early FY 2008 as a Station Detailed Test Objective (SDTO).

### Comparison of GLA and SSLM

Specification	GLA	SSLM	SSLM Benefits to ISS/Future Spacecraft
Power	30 W	30 W	n/a
Photo-optic Luminous Flux	449 lm	479 lm	Better illumination = safer operation
Mass	4.0 kg	3.6 kg	Less up-mass = more flexibility for manifesting
Input Voltage	120 VDC	120 VDC	n/a
Dimmability	flickering	0–100%	No flicker = less eye strain
Planned Life	~5,000 hr	~50,000 hr	Less maintenance = less up-mass and crew time



SSLM.



SSLM CAD model.

Our design offers the following strengths:

- proven component hardware: Our design uses components flown in other KSC-developed hardware;
- “heat path” thermal pad: LED array heat is transferred from the circuit board by silicon pad, negating the need for a cooling fan;
- variable colorimetry: The output light color can be changed by inserting different LED combinations.

Contact: Daniel C. Shultz <[Daniel.C.Shultz@nasa.gov](mailto:Daniel.C.Shultz@nasa.gov)>, NASA-KSC, (321) 861-2896

Participating Organization: Bionetics Corporation (Trevor Murdoch, April C. Spinale, and Howard W. Wells)