

Proposed Light Emitting Diode (LED) Runway Status Lights (RWSL) System

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Global Engineering Management Services



Federal Aviation
Administration



FAA Objective

- To support the development of the most cost effective RWSL system design for National Airspace System (NAS) deployment, the FAA is seeking full development of a LED version of the RWSL Field Lighting System that conforms to Government RWSL system specifications.

FAA / GEMS's Scope of Work

- The FAA is seeking to develop technical and performance requirements and identify industry sources to design, test and qualify an LED-based airfield system that conforms to the RWSL system performance specification.
- GEMS's objective on this effort is to assist the FAA with this endeavor.

Proposed LED RWSL System Provides for:

- ✓ **Improved Signal Conspicuity**
- ✓ **Improved System Reliability**
- ✓ **Reduced Cost of Operation**
- ✓ **Reduced Cost of Installation**

LED RWSL Power Distribution and Control Based on Using a

**Dedicated Series Circuit for Each
REL and THL Light Group**

✓ **Using multiple controlled series circuits improves system reliability.**

1. One CCR or circuit failure does not have the potential of shutting down a large portion of the RWSL system.
2. Reliability of individual fixture location is improved since ILC unit and data transmission over the series circuit is no longer utilized. Fixture control provided by individual circuit CCR's or CCR/CSS (CCR with Circuit Selector Switch).

✓improves system reliability.

3. LEDs due to their inherent long life and mode of failure no longer have to be electronically monitored for light outage.

Note: Light fixture photometric failure with LED light source has equal or higher incidence of overall optical system failure than due just to LED failure.

Use mobile photometric testing (AC 150/5340-26) to detect either LED or optical system failures.

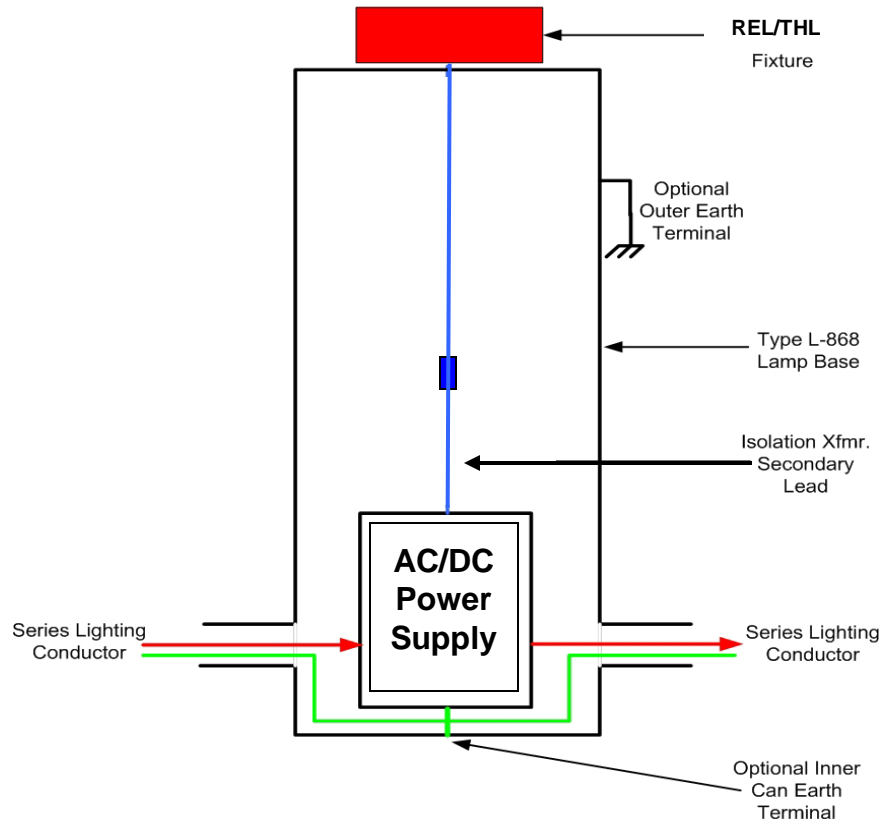
✓ **Using multiple controlled circuits provides major reduction in energy usage.**

1. Each circuit is operated only when fixture signal is required.
2. Eliminating the use of ILC units will save significant energy at each fixture location.

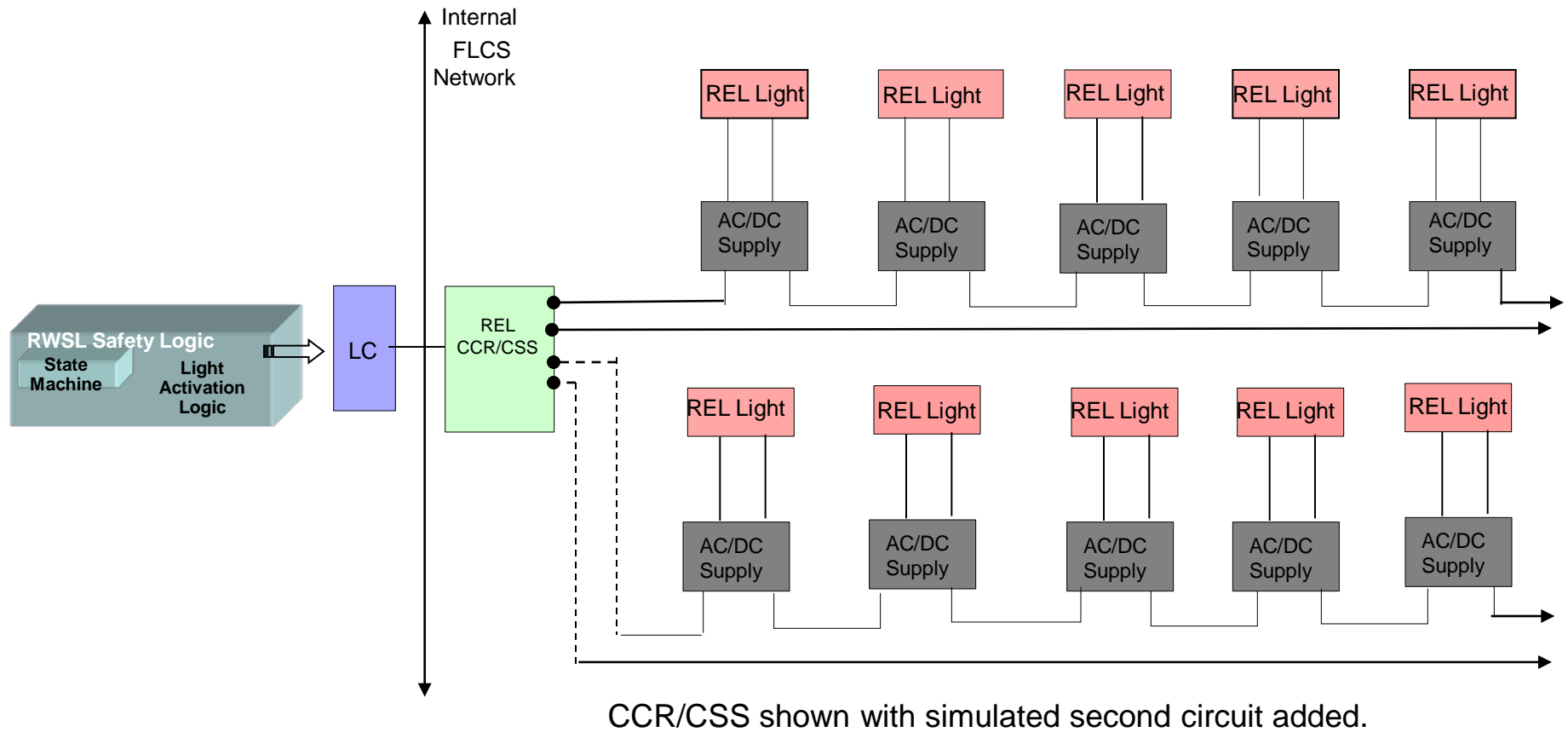
✓ **Reduced load on the CCR results in reduced circuit voltages to ground**

1. Less current leakage to ground
2. Easier to maintain same current level to each light source.
3. Potential of using smaller conductor and lower voltage rated cable

Typical LED REL or THL Installation



LED RWSL System Utilizing CCR/CSS



Thank You

