The Emerging Technologies program has been evaluating LED technology for use in many applications including recessed troffers and cans, parking structures, high/low bay, street and outdoor lighting for some time. Products tested include new fixtures, flat panel fixtures, retrofit kits and replacement tubular lamps (Types A, B and C).

X/X/2010 ET10SCE1180 - LED T8 Project Initiated (Cancelled): Due to lack of standards and documentation of new LED T8 products, the project was cancelled.

6/30/2011 ET10SCE1190 - LED Recessed Luminaire Project Initiated: This project was focused on evaluating LED options for replacing Linear Fluorescent technology in Recessed Troffer Applications. Due to a high volume of inquiries into LED T-8 tube replacements, two LED T-8 tubes were also tested.

10/1/2012 LED Luminaire Study Completed (ET10SCE1190 - LED Recessed Luminaires): Results indicated that the LED tubes tested in a lenses 2x4 troffer fixture showed similar results to LED 2x4 fixtures though their distribution pattern was narrower. Efficacy of the DLC listed LED Tube was similar to the low end of the LED fixtures tested, however there are only a limited amount of tubes specified on the DLC QPL. Cost of the LED Tubes were $50 per lamp.

5/30/2103 SCE Moratorium on LEDT Tubes: Due to the costs, compatibility and performance concerns at the time, LED Tube Replacement Lamps were prohibited as a program offering. A memo was sent to all Account Reps to be used as talking points for customer inquiries.

5/1/2014 LED Tubes ET Study Initiated (ET14SCE1040 – LED Tube Retrofit): ET had been following the progression of the technology as well as standardization in classifying the types of replacement lamps. The DOE had conducted a comprehensive study on the technology and several new products became available that on paper addressed some of the concerns. A new ET project was initiated to evaluate the improvements in the technology by testing the different type of LED Tubes (now defined as UL Types A, B and C) in the laboratory setting. The lamps were tested for their performance as claimed by manufacturer specs on photometrics, power and power quality and efficacy.

11/7/2014 WP Guidance doc from ED Staff

12/15/2014 1st Conference Call Mtg with ED Staff

12/16/2014 ED Staff mtg on VA study

1/14/2015 2nd Conf Call Mtg with ED Staff

2/25/2015 ED-IOU Tech Collab Mtg

3/3/2015 CALTF Presentation

5/4/2015 Custom scaled field placement Started (ET15SCE8040 – LED Tube Retrofit SFP): This study was to gather additional data as required to document early ballast failure concerns as well as sampling of existing installed ballast stock. Data collected from the Customized Project installations included a sampling of existing ballast and lamp make and model numbers, ballast and fluorescent lamp age, light levels pre/post as well as 6 week and 1 year/4380 hrs (whichever comes first), and tracking of installed lamps and existing ballasts. All installations have been completed and data compiled for workpaper. The 1 year follow-ups are currently being conducted.

10/1/2015 Tubes Report Complete (ET14SCE1040 – LED Tube Retrofit):

* The ballast-compatible (UL Type A) LED tubes performed within manufacturer specs and with efficacy better than linear fluorescent lamps and was able to dim considerably better than fluorescent lamps. The testing also included integrated driver direct line voltage (UL Type B) and remote driver (UL Type C).
* During the laboratory testing a few representative samples of the many available LED tube products were being evaluated primarily on a per lamp basis. For additional pricing and compatibility data a Scaled Field Placement was recommended. As such the Custom SFP mentioned above was initiated.

5/16/2015 WP Submittal

6/24/2016 WP Resubmittal

03/24/2017 SCE meeting with CPUC ExAnte staff where Jeff Hirsch and Kevin Madison agreed to no POE requirements for this technology since the data collection suffices the technical compatibility and way to recycle the existing technology.

Attachments: ET10SCE1190 – Recessed LED Luminaire Report



Memo for Moratorium of LED Tubes and Technical Documentation

 

ET14SCE1040 – Linear LED Lamps – Laboratory Performance Assessment

