

SPECIFIC OPERATIONS CHECKLIST

ENERGY EFFICIENT LIGHTING PRODUCTS TESTING

Instructions to the Assessor: The checklist addresses specific accreditation criteria prescribed in Section 285.33, *Criteria for Accreditation*, of the Energy Efficient Lighting Products (EEL) Testing Program Handbook. Included also are instructions and comments sheets used for observing actual demonstrations of the performance of selected test methods. These criteria **do not** supersede the *Criteria for Accreditation*, based on Section 285.33 of the *NVLAP Procedures and General Requirements* (NIST Handbook 150), which are addressed in the GENERAL OPERATIONS CHECKLIST.

Place an "X" beside any of the following items which represent a deficiency. Place a "C" beside each item on which you are commenting for other reasons. Record the item number and your deficiency explanation and/or comments on the appropriate comment sheet(s). Place a check beside all other items you observed or verified at the laboratory.

1 *Quality System*

- _____ 1.1 The quality manual provides detailed procedures, including descriptions of equipment, that the laboratory follows in performing photometric and colorimetric tests.

- _____ 1.2 The quality manual lists the range of test specimens that a laboratory can test for each test method for which accreditation is sought.

- _____ 1.3 The quality manual describes practices for maintenance and calibration of the equipment used in conducting the tests on energy efficient lighting products. Specific calibration requirements for the EEL program are:
 - in accordance with the manufacturer's recommendation;
 - the test method; or
 - as specified below:

| <i>Apparatus/Instrumentation</i> | <i>Calibration or Verification Frequency</i> |
|---|---|
| automatic data logging and readout | annually |
| ammeters, ohmmeters, voltmeters, wattmeters | annually |
| potentiometer | annually |
| thermocouple and related instrumentation | annually |
| oscilloscope | annually |
| environmental control apparatus | annually |
| photometers | per test method |
| colorimeters | per test method |
| reference ballasts | per test method |



2 Personnel

The personnel competency program for Energy Efficient Lighting Products Testing includes the applicable portions of the following, as a minimum:

- ___ 2.1 General requirements of the test method
- ___ 2.2 Specimen preparation and/or mounting techniques
- ___ 2.3 Techniques for measuring ambient thermal conditions
- ___ 2.4 Lamp seasoning and stabilization procedures
- ___ 2.5 Procedures for transporting lamps between warm-up racks and measurement apparatus
- ___ 2.6 Photometric measurement procedures
- ___ 2.7 Voltage, current, and electrical power measurements
- ___ 2.8 Oscilloscope measurements
- ___ 2.9 Ballast circuit connection and measurement
- ___ 2.10 Photometric calibration techniques
- ___ 2.11 Thermocouple mounting and calibration
- ___ 2.12 Colorimetric measurement techniques
- ___ 2.13 Goniophotometric measurement techniques.

3 Calibration and Test Methods

- ___ 3.1 Proper sample preparation and maintenance, in appropriate conditioned state, before testing.
- ___ 3.2 Sample and test specimen identification for correlation with related record.
- ___ 3.3 Test data forms (as required by the reference standard or developed in-house) are properly completed.
- ___ 3.4 Participant staff for the test maintains a dated log book or record.
- ___ 3.5 Test equipment, devices, and instruments meet the requirements (and meet calibration conditions).
- ___ 3.6 Electrical power is conditioned and regulated within standard specifications.

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- ___ 3.7 The test method(s) are performed correctly, and are appropriate for the given lamp or luminaire specimens.
- ___ 3.8 Test(s) are conducted within the specified temperature, humidity, and/or air flow conditions.
- ___ 3.9 Lamps tested in the specified orientation, if any.
- ___ 3.10 Test lamps have been properly seasoned.
- ___ 3.11 Measurement circuitry is appropriate for the test method.
- ___ 3.12 Calibration of photometric standards is verified.
- ___ 3.13 Measurements are reported only after lamps have stabilized.
- ___ 3.14 For photometric measurements, test reports adequately describe the procedures and equipment.
- ___ 3.15 For life performance tests, laboratory procedures for monitoring and recording lamp failure times are appropriate to the test methods.
- ___ 3.16 Test reports are complete and accurate for the given lamp or luminaire specimens.
- ___ 3.17 Absorption correction procedures are being applied.
- ___ 3.18 Adjustment for instrument electrical losses, if any, are made.

