

## Standard Information

### Transition from UL 508C to UL 61800-5-1

**Standards Number and Name:**

UL 508C - Power Conversion Equipment

UL 61800-5-1 - Adjustable Speed Electrical Power Drive Systems – Part 5-1: Safety Requirements – Electrical, Thermal and Energy

**Standard Edition and Issue Date:**

UL 508C - 3<sup>rd</sup> Edition Dated November 9, 2010

UL 61800-5-1 - 1<sup>st</sup> Edition Dated June 8, 2012

## Effective Date of New/Revised Requirements

Effective Dates: **February 1, 2020** (revised products)

## Impact, Overview, Fees and Action Required

**Impact Statement:**

- **NOTE: Effective immediately, UL 61800-5-1 will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on the Effective Date of February 1, 2020 unless product is found to comply with the new/revised requirements. New products are defined as:**
  - Any model or models that belong to a new series of drives (not previously Listed or Recognized to UL 508C)
  - Any new model to an existing series (currently Listed or Recognized to UL 508C) that requires an associated change to the ratings or construction details section of the Certification report for that series
- As of February 1<sup>st</sup>, 2020, UL 508C will be withdrawn. This is the implementation date.
- Existing certifications to UL 508C will be allowed to continue to be certified to the requirements in effect for the product, provided there are no changes to the design after the implementation date that require a certification decision in accordance with the latest published version of the Standard. For example, if changes to the design, ratings, or the use of alternate components requiring a certification decision are submitted after the implementation date, the device (in its entirety) will need to be evaluated to the new requirements of UL 61800-5-1. Additionally, new/revised requirements may require action to be taken in the future.
- After February 1<sup>st</sup>, 2020, only UL 61800-5-1 will be used for drive investigations.

# Standards Update Notice (SUN)

Issued: January 14, 2016

## Overview of Changes:

The Summary of Requirements for UL 61800-5-1 that addresses the significant new and/or revised requirements is in the table below. These requirements are applicable for investigation of products currently certified to UL 508C should they be transitioned to UL 61800-5-1.

**Fees:** A quote will be issued, per the manufacturer's request or due to a change in design after the implementation date, for the Applicant to work with their local Intertek Lab to determine the necessary test program, sampling requirement and needed construction details and/or updated marking/instruction details.

NOTE - IN CANADA: The transition from UL 508C to UL 61800-5-1 does not affect certification for use in Canada. CSA C22.2 No. 14-10 remains the standard for investigation for use in Canada.

## Client Action Required:

**Information** – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised requirements do not apply to your product (s).

**Current Listings Not Active?** – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.

The content in this SUN is based on UL's Implementation of Continuing Certification Program for Power Conversion Equipment dated April 10, 2013.

## Description of New/Revised Technical Requirements

Subject	Comment
Clearance and Creepage Requirements	<ul style="list-style-type: none"> <li>UL 840 is no longer a standard referenced as a standard for investigating clearances and creepages.</li> <li>Where protective separation is required, clearance and creepage requirements are greater than those required by UL 840 and UL 508C Tables 36.1 (columns B, C, and D), 36.3, and 36.4.</li> <li>Surge protective devices cannot be used to reduce the overvoltage category (and thus the required clearance) for protective separation. When reducing the overvoltage category where basic insulation is required, the SPD's are required to be monitored and an indication of their status provided. UL 840 did not require surge protective devices to be monitored with a fault status indication to reduce clearance requirements and also allowed surge protective devices to reduce the required clearances between any considered circuits/parts.</li> <li>Impulse test for reduced clearances is not allowed where protective separation is required and only allowed for basic and functional insulation if a homogeneous electrical field is present. UL 840 allowed for impulse test in lieu of clearances in any construction.</li> <li>Investigation of clearances and creepages is required on inner layers of PWB's. Alternatively, the inner layers can be investigated to solid insulation requirements. UL 508C waived requirements on inner layers of PWB's.</li> <li>Note – where functional insulation is required the required clearances may be smaller</li> </ul>

# Standards Update Notice (SUN)

Issued: January 14, 2016

Subject	Comment
Short Circuit Test	<ul style="list-style-type: none"> <li>• All power outputs must be short circuit tested. UL 508C only required the motor output to be short circuit tested.</li> <li>• <i>Note - Cotton indicator is required for all short circuit tests. UL 508C allowed for cotton to not be used when conducting the tests with circuit breakers.</i></li> <li>• <i>Note - Voltages of secondary circuits must be monitored and not exceed certain levels during the short circuit and breakdown of components tests, or the AC/DC voltage test must be conducted after the short circuit test. This was not part of UL 508C pass/fail criteria.</i></li> </ul>
Breakdown of Components Test	<ul style="list-style-type: none"> <li>• The circuit used for the breakdown of components test must be capable of standard and high fault currents based on manufacturer's short circuit current rating; unless detailed analysis shows a different value is equivalent or more severe. UL 508C was not specific on the test circuit required for the breakdown of components test.</li> <li>• <i>Note - Voltages of secondary circuits must be monitored and not exceed certain levels during the breakdown of components tests, or the AC/DC voltage test must be conducted after the breakdown of component test. This was not part of UL 508C pass/fail criteria.</i></li> <li>• <i>Note – Required branch circuit protection and other test set-up requirements are specified. These are the same as the short circuit test. UL 508C did not have test set-up specifics.</i></li> </ul>
Bonding Test	<ul style="list-style-type: none"> <li>• Products with accessible conductive parts are required to comply with the protective bonding test. UL 508C did not require a test for bonding of accessible conductive parts.</li> <li>• <i>Note - Kits provided for bonding of multiple conduit entries in polymeric enclosures require a "CAUTION" marking. UL 508C did not require a "CAUTION" marking for bonding kits.</i></li> </ul>