

Alternate Components - When Is Testing Required?

Alternate Components in UL/CSA Certified Products

Is It a Critical Part?

For any alternate component, the main consideration for the Certification Lab is whether the component was reviewed and tested during the original certification evaluation. This leads to a review of the Certification report for the overall product. Is the component in question shown in the list of critical components in the certification report? Is it called out by manufacturer's name and part number? If the part is called out by manufacturer and part number, it means that the component is highly critical and will require a certification agency engineer to review and consider re-test to determine the acceptability of the new component.

Testing & Review Not Required:

If the component in question is not called out on the critical component list in the certification report for the product, you may change the component without further certification consideration. If the component is shown on the critical component list but the report does not specify the manufacturer or part number for the component, you can use the alternate component without notifying the certification agency. The new component must be rated per the specifications stated in the certification report. The component will be confirmed to comply with the ratings during your next regular inspection by the certification agency factory inspector.

Testing Required:

If the initial review of the component determines that the original component was "reviewed and tested", the new component must be reviewed and tested in the final product to confirm acceptability. For example, if the component could affect the input current or the leakage current or was a measured component during the temperature test, the affected test(s) would need to be repeated on the full product with the alternate components installed. This is usually the case for alternate critical components such as EMI Filters (leakage current), Power Supplies and Motors (accessibility, input current, temperature, fault conditions). Internal components typically require more re-testing than external components due to the potential impact on internal product temperatures.

Certification Agency Requirements:

It is important to note that OSHA, the agency that accredits US Certification Laboratories for UL standards, has updated its policies over the last few years to tighten up requirements in this area. Labs are now required to clearly address test requirements for Alternate Components and Alternate Constructions. "Engineering rationale" in lieu of testing is now highly discouraged for critical components that had an effect on the original test results. This has greatly reduced the willingness of certification agencies to add alternate critical components without some testing to justify that decision – this is especially true for alternate EMI Filters, Power Supplies, and Motors.



Conditions of Acceptability:

All certified "components" have Conditions of Acceptability (CofA's) in their UL component certification report that provide guidelines that must be met in the end product. You must comply with all CofA's in order for the component to be suitable for your application. Therefore, you should always request the CofA's from your vendors when sourcing components. You will also need to provide these CofA's to your Certification Lab so they can confirm the component is suitable for your application. The CofA review is required of the Certification Agency for alternate components even if testing is not required. In fact, it is part of the process to determine if tests are required as there are some certified components with CofA's that require specific tests on the component when installed in the end product.

Large Sample Considerations:

For large products, changing a component that requires re-testing may not be worth it due to the expense and difficulty in sending a sample to the certification lab. In this situation, you may want to consider these options:

- a) If your product is due for an update to a new edition of the standard, you may wish to perform this work at the same time to help justify the cost in sending an entire sample.
- b) A Certification Engineer could visit your facility to witness the tests if you have an adequate facility and the necessary test equipment.
- c) A Certification Engineer could visit your facility to witness the tests the next time they are in your area - to help reduce costs if you do not mind waiting.

Summary of Alternate Component Considerations:

In summary, the process for determining the suitability of your alternate components should include:

- a) Review the Certification Report to determine if the component in question is on the critical component list.
- b) If the part is not on the critical component list, you can change it without any notification to the certification agency.
- c) If the part is on the critical component list by ratings only, you may change it to another component that meets the same criteria/ratings specified.
- d) If the part is on the critical component list with the manufacturer's name and part number specified, you must request the certification agency add any replacements or alternates. This process involves a review of certified component CofA's and, determining if testing on a sample of the overall product incorporating the new component(s) is necessary. Certain components are more likely to impact the original test results and therefore require re-test. These include EMI filters, Power Supplies, Motor Controllers, and Motors.

CertifiGroup can help you determine the suitability of your components
CertifiGroup operates a complete Product Test & Certification Lab
CertifiGroup can certify or field label your products to UL & CSA standards
On-site, at your facility, or in our lab!