Understanding North American Consumer PRODUCT SAFETY CERTIFICATIONS

AUTHOR
BRADY EIFRID
Sr. Project Engineer
Standards and Regulations

Kohler Co.
Power Systems Division

INTRODUCTION

The intent of this white paper is to help the reader better understand the product safety certifications for power generation manufacturers.

This paper covers the certification processes, explains the details of testing and validation through third parties, provides information on how these third parties collaborate with one another, and how certifications may be handled in the field.

PURPOSES OF PRODUCT SAFETY CERTIFICATIONS

The two primary objectives for manufacturers regarding product safety certifications are:

- Ensure the safety of the consumer
- Ensure that the product being used by the consumer is of quality construction and reliable

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HOW DO MANUFACTURERS MEET PRODUCT SAFETY CERTIFICATIONS?

NATIONALLY RECOGNIZED TEST LABORATORIES

The two primary objectives are met through testing and validation by working with an outside and unbiased testing facility (party).

These facilities back testing via a certification and are referred to as Nationally Recognized Test Laboratories (NRTL). This term comes from the United States Occupational Safety and Health Administration (OSHA). OSHA requires specific qualifications be met to be formally identified as an NRTL.

NRTL FACILITIES USED IN THE UNITED STATES

Within the United States, there are numerous NRTLs; however, the most familiar ones are listed below:

- Underwriters Laboratory (UL)
- Canadian Standards Association (CSA or CSA International)
- Intertek Testing Services (ITSNA)
- Southwest Research Institute (SwRI)

These agencies work directly with manufacturers across virtually all industries to test, validate, and certify any/all products and components to provide one key goal—consumer safety.

NRTLs are just one group of many throughout the world that collaborate with manufacturers (and product users) to develop product standards. Some other familiar parties that also work on standardizing products and processes include:

- International Organization for Standardization (ISO)
- American National Standards Institute (ANSI)
- Institute of Electrical and Electronics Engineers (IEEE)
- International Electrotechnical Commission (IEC)

There are many more organizations that deal with standards and regulation development. The key difference between most of these organizations and an NRTL is the ability to take these standards and conduct the necessary construction review and/or testing needed to establish validation.

Figure 1

CSA Group

Certificate of Compliance

The products listed below are eligible to bear the CSA Mark shown

PRODUCTS

CLASS 4215 01 - ELECTRIC GENERATING PLANTS

Stationary Engine Generator Assemblies (Natural Gas and LPG fueled) for Outdoor Use, Model 38RCL, Insulation Class H, rated 120/240 Vac, 60 Hz, single phase, 1.0 pf, 38 kW max, 158 A max; 120/208 Vac 60 Hz, three phase, 0.8 pf, 39 kW max, 135 A max; 120/240 Vac, 60 Hz, three phase, 0.8 pf, 39 kW max, 117 A max; 277/480 Vac, 60 Hz, three phase, 0.8 pf, 39 kW max, 58 A max.

APPLICABLE REQUIREMENTS

CAN/CSA	C22.2 No. 14-13	-	Industrial Control Equipment
CSA Std.	C22.2 No. 100-14	-	Motors and Generators

THE ROLE OF AN NRTL

An NRTL's goal is to certify a product using the applicable standard and testing the product to those requirements within the standard.

An NRTL validates whether the product meets the standard's performance requirements.

Once a product meets the test performance criteria of the standard, then a certification is provided. Below is an example of what a certification looks like (*Figure 1*).

Some NRTLs may also work to develop product safety standards. For example, UL has many established standards for product certifications.

Some of the most common standards Kohler products meet today include:

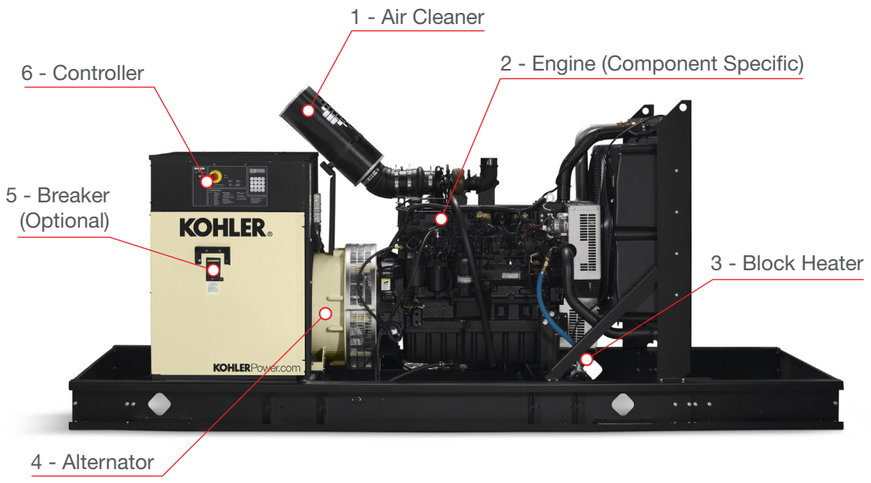
- UL 2200 – Standard for Safety – Stationary Engine Generator Assemblies
- UL 1008 – Transfer Switch Equipment
- UL 6200 – Controls for Stationary Engine Driven Assemblies
- UL 1558 – Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
- UL 891 – Standard for Safety – Switchboards

OVERALL CERTIFICATION OF AN ASSEMBLY

Reviewing *Figure 2* below shows additional standard details of several components of a stationary engine-driven generator unit which meets UL 2200, Stationary Engine Generator Assemblies Standard.

All of these components may have their own individual requirements and certifications which all tie into the overall certification of the generator assembly.

Figure 2



UL Individual Component Reference Numbers

Item #	Description	UL Reference	Item #	Description	UL Reference	Item #	Description	UL Reference
1	Air Cleaner	UL 900	3	Block Heater	UL 499	5	Breaker	UL 489
2	Engine	UL 2200	4	Alternator	UL 1004	6	Controller	UL 6200

HOW DO MANUFACTURERS MEET PRODUCT SAFETY CERTIFICATIONS?

NATIONALLY RECOGNIZED TEST LABORATORIES

Having this knowledge of how NRTLs test and certify products will provide a better understanding of how products are marked when certified. See *Figure 3* for an example.

Each NRTL has its own certification marks. It is important to note that NRTLs refer to these marking certifications as “listed” products. These listing marks are required to be applied on products that have been tested to quickly identify such testing has occurred.

Figures 3–5 are examples of labels used on listed products and components (“listed” and “certified” are interchangeable terms for product certifications).

It is important to fully understand how to interpret these trademarks from these NRTLs, because there are common mistakes when referencing them.

Reviewing *Figure 4* and *Figure 5* again you may notice that there are characters on the lower left, and right-hand sides of the trademarks.

These are incredibly important as these characters are quick identifiers that tell us where these products may be sold and used.

In *Figure 5*, the “C” stands for Canada and the “US” stands for the United States. This mark is used on products certified by Intertek that meet both Canadian and U.S. requirements for product safety.

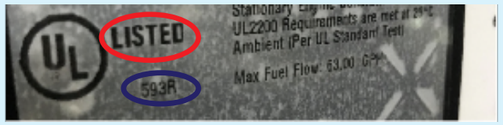
Other markings from other NRTLs are handled the same way. Additional information on these markings for UL and CSA are further detailed within *Figure 6*.

The common mistake is the thought that products certified for use in Canada must be marked using the CSA trademark. Additionally, the CSA trademark is not just for use in Canada.

In fact, with the proper certification, any NRTL product may be used either locally or internationally. In 2013, UL was formarlly recognized as a Canadian NRTL by the Standards Council of Canada (SCC).

Examples of Labeling Found on Generator Product

Figure 3



UL-listed product marking “593R” is the product identity mainly used for NRTL purposes only. (In this case UL is the NRTL that tested and certified this generator.)

Figure 4

CSA listing mark for a fuel hose showing it has been tested

Figure 5

Trademark listing found on products tested and certified by the NRTL known as Intertek Group

Figure 6

		Mark for U.S.	Mark for Canada	Mark for both U.S. and Canada
Certification body \ Standard		UL certified products UL conforming products	CSA certified products CSA conforming products	Certified/conforming in both countries
Testing/certifying by UL	Recognition mark			
	Listing mark	LISTED (CSA certified products) UL mark	C LISTED (CSA conforming products) C-UL mark	C US LISTED (UL certified products/ CSA conforming products) C-UL mark
Testing/certifying by CSA		NRTL US (UL conforming products) CSANRTL/CSAus mark	(CSA certified products) CSA mark	NRTL /C C US (CSA certified products/ UL conforming products) CSANRTL/CSAus mark

COLLABORATION WITH NRTLS

CLIENT TEST DATA PROGRAM (CTDP)

Kohler works directly with UL under the Client Test Data Program (CTDP). This is a program that allows the client (Kohler Co.) to conduct testing set forth by UL directly at the client's manufacturing test facility.

This is possible through stringent quality requirements that the testing laboratory must meet. Quality control that UL accredits Kohler is under standard ISO 17025 general requirements for the competence of testing and calibration laboratories.

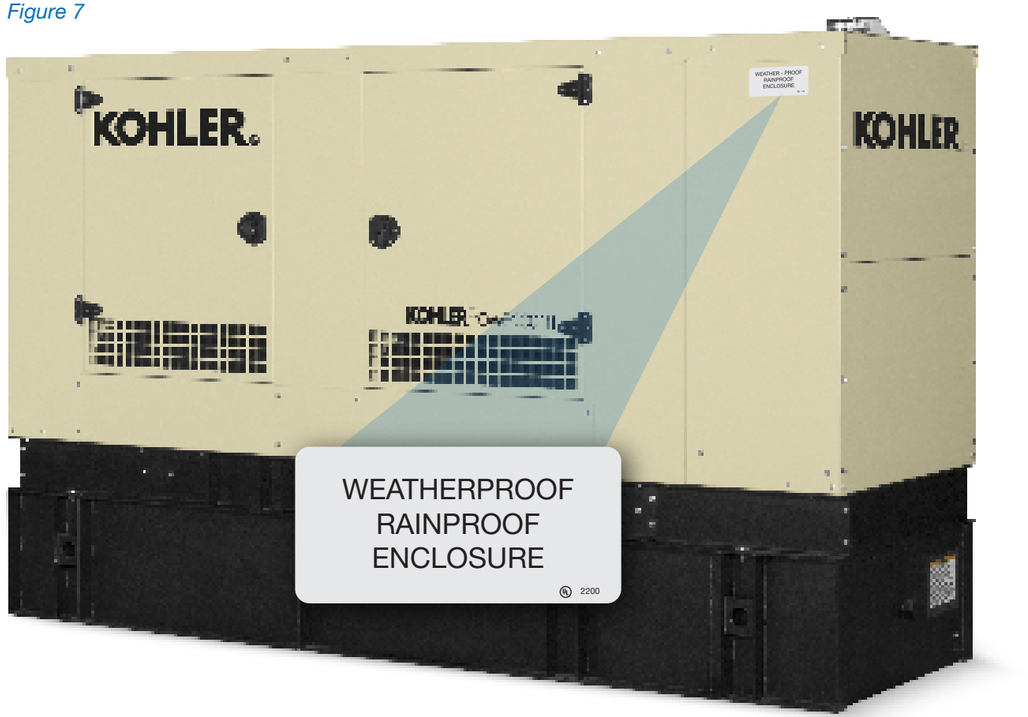
Having an annual UL audit allows Kohler to conduct product testing of UL standards in-house. An example of this is conducting UL 2200 tests for stationary engine generator sets.

A generator set enclosure, for example, must be rain tested in accordance with UL 2200 to ensure the enclosure meets the weatherproof requirements within the standard.

UL 2200 requires the rain test fixture to meet specific construction designs as described within the standard for the CTDP.

The ability to test products in-house allows for a faster and more streamlined certifying process. *Figure 7* shows how the enclosures provided are marked to indicate that they meet UL 2200 requirements for enclosures on generator equipment. Kohler certifications from the factory expand outside of our generator product offerings allowing for a total system integration of certified, quality, and reliable product.

Figure 7



INSTALLATION GUIDELINES

NFPA STANDARDS

It is Important to note that most of these safety standards require additional compliance with installation codes. For example, the scope of UL 2200 states that listed products shall be installed in accordance with NFPA 37, NFPA 70 (National Electric Code), and NFPA 110. There are additional installation guidelines that are noted, but the key is to understand that the product being properly listed and certified is only part of the big picture of maintaining compliance with all applicable codes.

You can have a product that is properly tested and labeled from the factory but still risk issues in the field if the product is installed incorrectly.

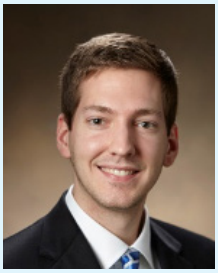
Always consult with your local code experts to ensure certified product is installed in accordance with your additional installation guidelines and local codes as applicable.

CONCLUSION

There are many standard requirements for products as they relate to their construction and safety. However, our hope is that this document provides you with a new understanding of how these certifications may be achieved through testing and validation with a better NRTL and how to interpret consumer product markings in the field.

Feel free to reach out to your local KOHLER distributor for additional assistance with codes and standards.

ABOUT THE AUTHOR



Brady Eifrid is a senior project engineer within the Global Power Group Standards and Regulations team that ensures product compliance for all power system products, including safety certifications with UL, Canadian Standards Association (CSA), and structurally for the International Building Codes (IBC).

Brady also drives certifications, as applicable, for the Commonwealth of Massachusetts Plumbers and Gas Fitters (Mass Gas) and California Department of Health Care Access and Information (HCAI). Brady is a member of the Standard Technical Panel (STP) for UL 2200, UL 2200A, and UL 6200. He is also a Technical Committee board member for NFPA 37. He consults with many driving authorities within the industry to understand and provide feedback on the ever-changing world of standards and regulations.

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