



[6450-01-P]

DEPARTMENT OF ENERGY

[Case Number 2018-007; EERE-2018-BT-WAV-0011]

Energy Conservation Program: Petition for Waiver of Beghelli North America from the Department of Energy Illuminated Exit Signs Test Procedure

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Notice of petition for waiver, and request for comments.

SUMMARY: This document announces receipt of and publishes a petition for waiver from Beghelli North America (“Beghelli”), which seeks a waiver from the U.S. Department of Energy (“DOE”) test procedure used for determining the energy consumption of specified illuminated exit sign basic models. Beghelli seeks to use an alternate test procedure to address issues involved in testing the basic models identified in its petition. Beghelli contends that the design characteristics of its combination illuminated exit signs prevent them from being accurately tested using the currently applicable DOE test procedure. Beghelli has suggested an alternate test procedure to test and rate the Beghelli basic models specified in its petition. For the reasons discussed in this document DOE is proposing a different alternate test procedure. DOE solicits comments, data, and information concerning Beghelli’s petition, its suggested alternate test procedure, and DOE’s proposed alternate test procedure to inform its decision on Beghelli’s waiver request.

DATES: Written comments and information are requested and will be accepted on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at <http://www.regulations.gov>. Alternatively, interested persons may submit comments, identified by case number “2018-007”, and Docket number “EERE-2018-BT-WAV-0011,” by any of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.
- *E-mail:* Behelli2018WAV0011@ee.doe.gov. Include the case number [Case No. 2018-007] in the subject line of the message.
- *Postal Mail:* Appliance and Equipment Standards Program, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, Mailstop EE-5B, Petition for Waiver Case No. 2018-007, 1000 Independence Avenue, SW., Washington, DC 20585-0121. If possible, please submit all items on a compact disc (“CD”), in which case it is not necessary to include printed copies.
- *Hand Delivery/Courier:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L’Enfant Plaza, SW., 6th floor, Washington, DC, 20024. If possible, please submit all items on a “CD”, in which case it is not necessary to include printed copies.

No telefacsimilies (faxes) will be accepted. For detailed instructions on submitting comments and additional information on this process, see section V of this document.

Docket: The docket, which includes *Federal Register* notices, comments, and other supporting documents/materials, is available for review at <http://www.regulations.gov>. All documents in the docket are listed in the <http://www.regulations.gov> index. However, some

documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

The docket web page can be found at <http://www.regulations.gov/docket?D=EERE-2018-BT-WAV-0011>. The docket web page contains simple instruction on how to access all documents, including public comments, in the docket. See section V for information on how to submit comments through <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT:

Ms. Lucy deButts, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC 20585-0121. E-mail: AS_Waiver_Request@ee.doe.gov.

Mr. Michael Kido, U.S. Department of Energy, Office of the General Counsel, Mail Stop GC-33, Forrestal Building, 1000 Independence Avenue SW., Washington, DC 20585-0103. Telephone: (202) 586-8145. Email: Michael.Kido@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

I. Background and Authority

The Energy Policy and Conservation Act of 1975, as amended (“EPCA”),¹ authorizes the U.S. Department of Energy (“DOE”) to regulate the energy efficiency of a number of consumer products and industrial equipment. (42 U.S.C. 6291–6317) Title III, Part B of EPCA established the Energy Conservation Program for Consumer Products Other Than Automobiles, which sets forth a variety of provisions designed to improve energy efficiency for certain types of consumer

¹ All references to EPCA in this document refer to the statute as amended through the EPS Improvement Act of 2017, Public Law 11–115 (January 12, 2018).

products. These products include illuminated exit signs, the focus of this document. (42 U.S.C. 6291(37); 42 U.S.C. 6295(w))

Under EPCA, DOE's energy conservation program consists essentially of four parts: (1) testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA include definitions (42 U.S.C. 6291), energy conservation standards (42 U.S.C. 6295), test procedures (42 U.S.C. 6293), labeling provisions (42 U.S.C. 6294), and the authority to require information and reports from manufacturers (42 U.S.C. 6296).

The Federal testing requirements consist of test procedures that manufacturers of covered products must use as the basis for: (1) certifying to DOE that their products comply with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6295(s)), and (2) making representations about the efficiency of that product (42 U.S.C. 6293(c)). Similarly, DOE must use these test procedures to determine whether the product complies with relevant standards promulgated under EPCA. (42 U.S.C. 6295(s))

Under 42 U.S.C. 6293, EPCA sets forth the criteria and procedures DOE is required to follow when prescribing or amending test procedures for covered products. EPCA requires that any test procedures prescribed or amended under this section must be reasonably designed to produce test results which reflect the energy efficiency, energy use or estimated annual operating cost of a covered product during a representative average use cycle or period of use and requires that test procedures not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) The test

procedure for illuminated exit signs is contained in the Code of Federal Regulations (“CFR”) at 10 CFR 431.204, “Uniform test method for the measurement of energy consumption of illuminated exit signs.”²

Under 10 CFR 431.401, any interested person may submit a petition for waiver from DOE’s test procedure requirements. DOE will grant a waiver from the test procedure requirements if DOE determines either that the basic model for which the waiver was requested contains a design characteristic that prevents testing of the basic model according to the prescribed test procedures, or that the prescribed test procedures evaluate the basic model in a manner so unrepresentative of its true energy consumption characteristics as to provide materially inaccurate comparative data. 10 CFR 431.401(f)(2). A petitioner must include in its petition any alternate test procedures known to the petitioner to evaluate the basic model in a manner representative of its energy consumption characteristics. 10 CFR 431.401(b)(1)(iii).

DOE may grant the waiver subject to conditions, including adherence to alternate test procedures. 10 CFR 431.401(f)(2). As soon as practicable after the granting of any waiver, DOE will publish in the *Federal Register* a notice of proposed rulemaking to amend its regulations so as to eliminate any need for the continuation of such waiver. 10 CFR 431.401(l) As soon thereafter as practicable, DOE will publish in the *Federal Register* a final rule. *Id.*

² Although illuminated exit signs are covered products pursuant to EPCA, as a matter of administrative convenience and to minimize confusion among interested parties, DOE codified illuminated exit sign provisions into subpart L of 10 CFR part 431 (the portion of DOE’s regulations dealing with commercial and industrial equipment) because typically businesses, rather than individuals, purchase them. 70 FR 60407, 60409 (Oct. 18, 2005). DOE refers to illuminated exit signs as either “products” or “equipment.”

When DOE amends the test procedure to address the issues presented in a waiver, the waiver will automatically terminate on the date on which use of that test procedure is required to demonstrate compliance. 10 CFR 431.401(h)(2).

II. Beghelli's Petition for Waiver

On June 26, 2018, Beghelli filed a petition for waiver from the test procedure applicable to illuminated exit signs set forth in 10 CFR 431.204. (Beghelli, No. 1 at pp. 1-6³) Beghelli has requested a waiver for basic models⁴ that provide the dual function of exit signage and lighting for emergency egress (combination illuminated exit signs⁵), stating that the battery used in combination illuminated exit signs requires a substantially larger capacity to provide a minimum of 90 minutes of egress lighting, as required by safety codes. Beghelli has further stated that it is not feasible to separate the power measurement associated with the exit signage and the egress lighting because a single battery and charging circuit supplies power for both functions.

III. Requested Alternate Test Procedure

EPCA requires that manufacturers use DOE test procedures when making representations about the energy consumption and energy consumption costs of products covered by the statute.

³ A notation in this form provides a reference for information that is in the docket for this test procedure waiver (Docket No. EERE-2018-BT-WAV-0011) (available at <https://www.regulations.gov/document?D=EERE-2018-BT-WAV-0011-0001>) This notation indicates that the statement preceding the reference is document number 1 in the docket and appears at pages 2-4 of that document.

⁴ Due to the lengthy list of affected illuminated exit sign basic models covered by Beghelli's June 26, 2018 petition, DOE is making the complete list publicly available in the relevant regulatory docket. The specific basic models identified on pages 2-4 of the petition can be found in the docket at <http://www.regulations.gov/docket?D=EERE-2018-BT-WAV-0011>.

⁵ DOE uses the term "combination illuminated exit sign" in this notice to mean an illuminated exit sign that includes or is packaged with (1) at least one auxiliary feature and (2) a battery electrically connected to the illumination source for the face.

(42 U.S.C. 6293(c)) Consistent representations are important for manufacturers to use in making representations about the energy efficiency of their products and to demonstrate compliance with applicable DOE energy conservation standards. Pursuant to its regulations applicable to waivers from applicable test procedures at 10 CFR 431.401, and after consideration of public comments on the petition, DOE will consider setting an alternate test procedure for the products identified by Beghelli's petition in a subsequent Decision and Order.

Beghelli seeks to use an alternate test procedure to test and rate specific combination illuminated exit sign basic models. As an alternate to the test procedure currently in place at 10 CFR part 431, subpart L, Beghelli has requested that it determine the power for its combination illuminated exit signs using the following procedure:

1. Measure AC input power of the complete unit of combination illuminated exit sign with a fully charged battery.
2. Measure the DC output voltage and current to the light source of the unit.
3. Calculate the AC power consumption of the light source of the unit by applying a power factor correction of 30 percent as worst-case scenario. (Beghelli asserted that based on the circuitry design the loss would not exceed 30 percent.)
4. If needed, calculate the stand-by power for the unit when the battery is fully charged.

Stand-by power = input power (from item 1) - power of basic exit sign light source (from item 3)

The alternate test procedure suggested by Beghelli in its petition would measure the output power of the exit sign and apply conversion losses to back-calculate the input power to

the exit sign. This approach requires assumptions that will likely result in an uncertainty of measured values. Beghelli contends that the input to output power conversion losses of all basic models under consideration are at maximum 30 percent. However, Beghelli's petition does not provide a sufficient basis for the 30-percent value,. With the differences in battery types and sizes in the various basic models for which the waiver is being requested, it is not evident from the petition that the 30-percent value would apply across all the basic models of illuminated exit sign models identified in Beghelli's petition. Additionally, it is unclear whether the DC output voltage and current measurement in step 2 of Beghelli's suggested alternative testing method would result in a power measurement that could only be attributable to the light sources of the exit sign, without resorting to additional steps such as cutting wires or otherwise modifying the equipment's circuitry. Based on the limited information contained in Beghelli's petition, in DOE's view, the alternative test procedure suggested by Beghelli to use the estimated conversion losses in conjunction with a measurement that does not clearly isolate the power consumption to the light source(s) of the exit sign would be unlikely to accurately calculate the combination illuminated exit sign input power demand of the affected basic models.

As an alternative to Beghelli's suggested approach, this interim waiver will require the company to apply an alternate testing method that does not require application of conversion losses and, instead, relies on a more direct measurement of the input power consumption attributable to the light source(s) of the exit sign. This alternative approach, as noted in Section IV of this document, is consistent with one that DOE has permitted to be used in similar test procedure waiver circumstances. Although Beghelli would be required to use this approach for the purposes of this interim waiver, as discussed in Section V of this document, DOE seeks

comment on both the applicability of Beghelli's suggested method as well as the one required as part of this grant of interim waiver.

IV. DOE's Proposed Alternate Test Procedure

DOE investigated various approaches to isolate the input power used to illuminate only the exit sign portion of a combination exit sign including: scaling or prorating the portion of the input power demand associated with the battery; and measuring alternative power quantities as a proxy for input power demand. DOE tentatively concluded that these methods would require isolating the battery power used to illuminate the faces of the exit sign from the battery power used to operate auxiliary features. Based on DOE's understanding of combination exit sign circuitry, DOE has tentatively determined that it is either not possible to measure the required quantities or that doing so would require cutting wires and modifying the circuitry of the combination exit sign. However, DOE has determined that the basic models identified by Beghelli in its petition for waiver have equivalent non-combination illuminated exit sign models. For the specified basic models, DOE proposes the following alternate test method be used in the context of this interim waiver grant to Beghelli:

- (1) Identify an equivalent non-combination illuminated exit sign for the combination illuminated exit sign under test. A unit is an equivalent non-combination illuminated exit sign only if it consists entirely of electricity-consuming components identical to all of those of the unit whose input power demand is being determined, but does not include any auxiliary features, and contains an electrically connected battery. The equivalent non-combination illuminated exit sign must also have the same

manufacturer and number of faces as the unit whose input power demand is being determined.

- (2) Test the equivalent non-combination illuminated exit sign using the DOE test procedure at 10 CFR, part 431, subpart L. Assign the input power demand of the combination illuminated exit sign under test as the input power demand of the equivalent non-combination illuminated exit sign.

This alternate test procedure permits Beghelli to use the same approach that DOE permitted Acuity Brands to use as part of a prior Decision and Order granting that company a waiver from the DOE test procedure for evaluating similar equipment. 83 FR 11740 (March 16, 2018). Because the alternate procedure granted to Acuity Brands offers a more direct measurement of the actual energy use of the lighting sources in the exit sign – rather than an estimated power factor correction value – DOE is applying an approach that it believes offers a more accurate method in evaluating the energy usage of the lighting equipment at issue.

V. Request for Comments

DOE is publishing Beghelli's petition for waiver in its entirety, pursuant to 10 CFR 431.401(b)(1)(iv). The petition includes the basic models for which Beghelli is requesting the waiver and Beghelli's suggested alternate test procedure to determine the efficiency of Beghelli's those specified illuminated exit signs. DOE is particularly interested in the merits of Beghelli's suggested alternative testing method, including data supporting the suggested or another power factor, as well as comments comparing the accuracy of that approach against the one that DOE is requiring as part of this interim waiver – i.e. the Acuity Brands-based alternative test method.

DOE invites all interested parties to submit in writing by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, comments and information on all aspects of the petition, including the alternate test procedure. Pursuant to 10 CFR 431.401(d), any person submitting written comments to DOE must also send a copy of such comments to the petitioner. The contact information for the petitioner is Wenceslao Garro, *wenceslao.garro@beghellinorthamerica.com*, 3250 Corporate Way, Miramar, FL 33025 USA.

Submitting comments via *http://www.regulations.gov*. The *http://www.regulations.gov* web page will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to <http://www.regulations.gov> information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (“CBI”)). Comments submitted through <http://www.regulations.gov> cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through <http://www.regulations.gov> before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that <http://www.regulations.gov> provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to <http://www.regulations.gov>. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information on a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via mail or hand delivery, please provide all items on a CD, if feasible. It is not necessary to submit printed copies. No facsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English and free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked confidential including all the information believed to be confidential, and one copy of the document marked "non-confidential" with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include (1) a description of the items, (2) whether and why such items are customarily treated as confidential within the industry, (3) whether the information is generally known by or available from other sources, (4) whether the information has previously been made available to others without obligation concerning its confidentiality, (5) an explanation of the competitive injury to the submitting person which would result from public disclosure, (6) when such information might lose its confidential character due to the passage of time, and (7) why disclosure of the information would be contrary to the public interest.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

Signed in Washington, DC, on January 31, 2019.

Steve Chalk
Acting Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

Date: 6/26/2018

To Whom It May Concern

Subject: Beghelli Petition for Test Procedure Waiver for Specified Combination Illuminated Exit Signs

Following the waiver granted to Acuity Brands in reference to illuminated exit signs combo units (Case Number IES-001) for Test Procedure Waiver for Illuminated Exit Signs, Pursuant to 10 CFR §430.27; **Beghelli** is petitioning under the provision 10 C.F.R. § 431.401 a waiver for specified combination illuminated exit signs basic models on the grounds that contain design characteristics which prevent testing the basic models as per the prescribed test procedures.

1) Test procedure sought to be waived

The test procedure to be waived is in 10 CFR part 431, subpart L, 431.203 & 431.204 that requires the measurement of power including the internal battery. Since the power limits were not established using a baseline for units that provide the dual function associated with a combo unit, it is not possible to separate the power measurement for the exit sign and the egress lighting at the same time since a single battery and charging circuit supplies power for both functions.

2) Manufacturers of all other basic models distributed in commerce in the United States and known to the petitioner to incorporate design characteristic(s) similar to those found in the basic model that is the subject of the petition.

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Jessica Stanek
Con-Tech Lighting

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 jstanek@con-techlighting.com

3) Alternative test procedure known to the petitioner to evaluate the performance of the equipment type in a manner representative of the energy and/or water consumption characteristics of the basic model.

For combination exit and egress lighting units (combo units), the power shall be determined by the following procedure:

1. Measure AC input power of the complete combo unit for a fully charged battery
2. Measure the DC output voltage and current to the light source of the exit sign
3. Calculate the AC power consumption of the light source of the exit sign by applying a power factor correction of 30% as worst case scenario. Based on our circuitry design the loss couldn't be more than 30%
4. If needed calculate the stand-by power for the combo unit when the battery is fully charged

Stand-by power = input power (from item 1) - power of basic exit sign light source (from item 3)

4) Individual model name for which a waiver is requested.

Model code breakdown sample:

SAMPLE MODEL : RBO-C-6-36-LR1-U-W-2LRWP-9W								
SERIES	OPERATION (6V, 12V)	CAPACITY	LED	FACE	CHEVRONS	MOUNTING	HEADS	COMPOSITE TUNGSTEN: 9W,18W
	6V 12V	Pb-A: 36, 60, 72, 100, 120, 140 NI-CD: 42, 54, 90, 130	RED GREEN	1 (SINGLE)	U (UNIVERSAL)	W (WALL)	2LRWP (ONLY)	COMPOSITE TUNGSTEN: 9W,18W HALOGEN: 8W
RBO-C	6V	36	LR (RED)	1 (SINGLE)	U (UNIVERSAL)	W (WALL)	2LRWP	9W

LRWP: LEFT, RIGHT, WATERPROOF

NOTE: THESE MODELS ARE ALL 2 HEADS, THE 1, 3, 4 HEAD OPTIONS WILL BE CONSIDERED IN THE FUTURE.

RBO-C BASIC MODELS

RBO-C-6-36-LR1-U-W-2LRWP-9W RBO-C-6-42-LR1-U-W-2LRWP-9W RBO-C-6-54-LR1-U-W-2LRWP-9W RBO-C-6-60-LR1-U-W-2LRWP-9W RBO-C-6-72-LR1-U-W-2LRWP-9W RBO-C-6-90-LR1-U-W-2LRWP-9W RBO-C-6-100-LR1-U-W-2LRWP-9W RBO-C-6-120-LR1-U-W-2LRWP-9W	6V, 9W (RED) (COMPOSITE TUNGSTEN)
RBO-C-6-36-LG1-U-W-2LRWP-9W RBO-C-6-42-LG1-U-W-2LRWP-9W RBO-C-6-54-LG1-U-W-2LRWP-9W RBO-C-6-60-LG1-U-W-2LRWP-9W RBO-C-6-72-LG1-U-W-2LRWP-9W RBO-C-6-90-LG1-U-W-2LRWP-9W RBO-C-6-100-LG1-U-W-2LRWP-9W RBO-C-6-120-LG1-U-W-2LRWP-9W	6V, 9W (GREEN) (COMPOSITE TUNGSTEN)
RBO-C-12-36-LR1-U-W-2LRWP-9W RBO-C-12-42-LR1-U-W-2LRWP-9W RBO-C-12-60-LR1-U-W-2LRWP-9W RBO-C-12-90-LR1-U-W-2LRWP-9W RBO-C-12-120-LR1-U-W-2LRWP-9W RBO-C-12-130-LR1-U-W-2LRWP-9W RBO-C-12-140-LR1-U-W-2LRWP-9W	12V, 9W (RED) (COMPOSITE TUNGSTEN)
RBO-C-12-36-LG1-U-W-2LRWP-9W RBO-C-12-42-LG1-U-W-2LRWP-9W RBO-C-12-60-LG1-U-W-2LRWP-9W RBO-C-12-90-LG1-U-W-2LRWP-9W RBO-C-12-120-LG1-U-W-2LRWP-9W RBO-C-12-130-LG1-U-W-2LRWP-9W RBO-C-12-140-LG1-U-W-2LRWP-9W	12V, 9W (GREEN) (COMPOSITE TUNGSTEN)
RBO-C-6-36-LR1-U-W-2LRWP-18W RBO-C-6-42-LR1-U-W-2LRWP-18W RBO-C-6-54-LR1-U-W-2LRWP-18W RBO-C-6-60-LR1-U-W-2LRWP-18W RBO-C-6-72-LR1-U-W-2LRWP-18W RBO-C-6-90-LR1-U-W-2LRWP-18W RBO-C-6-100-LR1-U-W-2LRWP-18W RBO-C-6-120-LR1-U-W-2LRWP-18W	6V, 18W (RED) (COMPOSITE TUNGSTEN)
RBO-C-6-36-LG1-U-W-2LRWP-18W RBO-C-6-42-LG1-U-W-2LRWP-18W	6V, 18W (GREEN)

RBO-C-6-54-LG1-U-W-2LRWP-18W RBO-C-6-60-LG1-U-W-2LRWP-18W RBO-C-6-72-LG1-U-W-2LRWP-18W RBO-C-6-90-LG1-U-W-2LRWP-18W RBO-C-6-100-LG1-U-W-2LRWP-18W RBO-C-6-120-LG1-U-W-2LRWP-18W	(COMPOSITE TUNGSTEN)
RBO-C-12-36-LR1-U-W-2LRWP-18W RBO-C-12-42-LR1-U-W-2LRWP-18W RBO-C-12-60-LR1-U-W-2LRWP-18W RBO-C-12-90-LR1-U-W-2LRWP-18W RBO-C-12-120-LR1-U-W-2LRWP-18W RBO-C-12-130-LR1-U-W-2LRWP-18W RBO-C-12-140-LR1-U-W-2LRWP-18W	12V, 18W (RED) (COMPOSITE TUNGSTEN)
RBO-C-12-36-LG1-U-W-2LRWP-18W RBO-C-12-42-LG1-U-W-2LRWP-18W RBO-C-12-60-LG1-U-W-2LRWP-18W RBO-C-12-90-LG1-U-W-2LRWP-18W RBO-C-12-120-LG1-U-W-2LRWP-18W RBO-C-12-130-LG1-U-W-2LRWP-18W RBO-C-12-140-LG1-U-W-2LRWP-18W	12V, 18W (GREEN) (COMPOSITE TUNGSTEN)
RBO-C-6-36-LR1-U-W-2LRWP-8W RBO-C-6-42-LR1-U-W-2LRWP-8W RBO-C-6-54-LR1-U-W-2LRWP-8W RBO-C-6-60-LR1-U-W-2LRWP-8W RBO-C-6-72-LR1-U-W-2LRWP-8W RBO-C-6-90-LR1-U-W-2LRWP-8W RBO-C-6-100-LR1-U-W-2LRWP-8W RBO-C-6-120-LR1-U-W-2LRWP-8W	6V, 8W (RED) (HALOGEN)
RBO-C-6-36-LG1-U-W-2LRWP-8W RBO-C-6-42-LG1-U-W-2LRWP-8W RBO-C-6-54-LG1-U-W-2LRWP-8W RBO-C-6-60-LG1-U-W-2LRWP-8W RBO-C-6-72-LG1-U-W-2LRWP-8W RBO-C-6-90-LG1-U-W-2LRWP-8W RBO-C-6-100-LG1-U-W-2LRWP-8W RBO-C-6-120-LG1-U-W-2LRWP-8W	6V, 8W (GREEN) (HALOGEN)
RBO-C-12-36-LR1-U-W-2LRWP-8W RBO-C-12-42-LR1-U-W-2LRWP-8W RBO-C-12-60-LR1-U-W-2LRWP-8W RBO-C-12-90-LR1-U-W-2LRWP-8W	12V, 8W (RED) (HALOGEN)

RBO-C-12-120-LR1-U-W-2LRWP-8W	
RBO-C-12-130-LR1-U-W-2LRWP-8W	
RBO-C-12-140-LR1-U-W-2LRWP-8W	
RBO-C-12-36-LG1-U-W-2LRWP-8W	12V, 8W (GREEN) (COMPOSITE E TUNGSTEN)
RBO-C-12-42-LG1-U-W-2LRWP-8W	
RBO-C-12-60-LG1-U-W-2LRWP-8W	
RBO-C-12-90-LG1-U-W-2LRWP-8W	
RBO-C-12-120-LG1-U-W-2LRWP-8W	
RBO-C-12-130-LG1-U-W-2LRWP-8W	
RBO-C-12-140-LG1-U-W-2LRWP-8W	

BACKGROUND:

Some basic models of illuminated exit signs provide combo units which include the dual function of exit signage and lighting for emergency. However, the battery used in a combo unit requires a substantially larger capacity to provide a minimum of 90 minutes of egress lighting as required by life safety code, as well as illuminating the EXIT signs. Because of this, the test procedures when applied to a combo unit do not accurately represent the energy consumption associated with illuminating the exit sign.



Standard Illuminated Exit Sign



"Combo unit" Illuminated Exit Sign and Egress Light

Our basic combo models are a combination of egress and emergency lighting in which the sign portion is identical to our DOE listed illuminated exit signs.

The supporting information is provided in the following appendixes:

- **Appendix A:** Basic models table
- **Appendix B:** Test report RBO-C12 on illuminated exit signs for combo
- **Appendix C:** Test report RBO-C6 on illuminated exit signs for combo units
- **Appendix D:** for the test report on illuminated exit signs.

TEST PROCEDURE ISSUES:

A combo unit utilizes a higher capacity battery to power both the exit sign face(s) as well as emergency egress lighting during a power outage. While §431.202 indicates that the input

power demand shall be measured with batteries at full charge, the higher capacity dual function battery for a combo unit results in a higher power than a smaller battery utilized in a unit that provides only the exit signage functionality.

The performance specification for the input power described in the Energy Star 2.0 specifications limits the power to illuminate the face of the exit sign with no reference to power associated with the emergency egress lighting. The test procedure for Energy Star 2.0 requires the measurement of power including the internal battery, but the power limits were not established using a baseline for units that provide the dual function associated with a combo unit. For a combo unit, it is not feasible to separate the power measurement associated with the exit signage and the egress lighting since a single battery and charging circuit supplies power for both functions.

CONCLUSION:

Beghelli is submitting this request for a test procedure waiver for combo units that provide the dual function of exit signs and emergency egress lighting. This requests under the provision 10 C.F.R. § 431.401 is for illuminated exit signs combo that contain design characteristics which prevent testing the basic models as per the prescribed test procedures.

Thank you in advance for your prompt consideration of this waiver request.
Best regards,

/s/

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References:

2013-07-17 Acuity Brands original petition for test procedure waiver
<https://www.regulations.gov/docket?D=EERE-2017-BT-WAV-0033>

Appendix A: Basic models table.

1) All model combinations will be considered for the waiver request except for the model that includes 0(no heads) that does not qualify for this waiver because it does not have egress lighting

Brand Name	Basic Model Number
Beghelli	RBO-C6***_***
Beghelli	RBO-C12***_***

■ ordering logic

Series	Operation	Pb-A (Capacity)	Ni-Cd ¹ (Capacity)	LED	Face No.	Chevrons	Mounting	Heads ²	Lamps	Options
RBO-C	6 (6V)	36 (6V, 12V)	42 (6V, 12V)	LR (red)	1 (single)	U (universal)	W (wall)	4LRWP	See lamps	AT (autotest)
	12 (12V)	60 (6V, 12V)	54 (6V)	LG (green)				3LRWP	selection on	NC ³ (nickel-cadmium battery)
		72 (6V)	90 (6V, 12V)					2LRWP	next page	TD ⁴ (time delay- specify 5, 10, 20 mins)
	100 (6V)	130 (12V)						1LRWP		TP (tamper proof screws)
	120 (6V, 12V)							0 (no heads)		AM (ammeter)
	140 (12V)									VM (voltmeter)
										SW (special wording- specify)
										FAI ⁵ (fire alarm interface)
										SMH (side mount heads)
										TC (teflon coating)
										WG (wireguard)

NOTE 1: Nickel-cadmium. Must select NC from options when selecting Ni-Cd.
 NOTE 2: Only PAR-36 heads available
 NOTE 3: NC (select wattage/voltage from Ni-Cd column).

NOTE 4: Must specify at time of order, 10 min standard.
 NOTE 5: Specify type- open/closed dry contact.

Appendix B: Test report RBO-C-12 on illuminated exit signs for combo units

 CSA INTERNATIONAL	TEST REPORT
Client: Beghelli Canada	Date: Aug 14, 2013
Master Contract: 187981	Project: Input Rating for Robusto Combo Series RBO: (Sign + charger) Base Model: RBO-C-12-140-xx-yy-zz
Network:	Model no: xx=LED colour of sign LR or LG yy=Number of face and mounting 1U or 1W zz=Number of heads 1,2,3,4LRWP
Device: Unit Equipment for Emergency Lighting	
The subject device was tested for compliance with C22.2 No 141-10	
Tests performed at 60Hz, unless otherwise noted	
Tested by: Fan Yang, P.Eng.	Signature: 
Reviewed by: Peter Shiling	Signature: 

Test Instruments Used:	Accuracy of Instruments
Fluke 73 multimeter (75970170)	+/- 0.3% for DC Voltage
Kikusui DC Electronic Load PLZ1004W (PA001402)	+/- 0.2% for Constant Current Mode
Fluke 52 Thermometer J-type (6617140)	+/- 0.2% + 0.3 ⁰ C
Simpson AC Current Leakage Meter (5-115695)	+/- 0.5% for AC Current
Yokogawa WT110 Digital Power Meter (2534GA943J)	+/- 0.3% for DC Voltage and Current
Criterion Instrument AVC25V (7475)	+/- 0.5% for AC Voltage

According to IECEE-CTL Guide001 Part1 5.1, if all accuracy of instruments is within the range limit stated in IEC/ISO17025, the measurement result can be directly compared with the test limit to determine conformance with the requirement.

As mentioned in Part1 5.2, in situations where the above “accuracy method” does not apply, uncertainty of measurement values are needed to be calculated and reported along with the variables results obtained during testing.

Follow the procedures in IECEE-CTL Guide001 Part2 to calculate uncertainty of measurement.

1. Condition for Test: Clause 6.2

Charger and transformer model	12V High Power Charger #451002100, Transformer #400000101
Battery model	Sigmas Lead-acid #SP6-12-T2, Beghelli #500000008
Rating of battery	6V12Ah x 4
Input Voltage	120\277\347VAC
Nominal Voltage of battery	12V
Min. end of discharge voltage	10.0V at circuit board
Recharge time	1.5A
Time rating	48 hours
Charge current	90 mins
Lamp type / load	140W, Electronic load

21. Tests for Energy Performance – Actual Input Power: TIL B-75, Clause 2 – Type 3 exit signs containing an integral battery-charging system shall be tested with the charging system connected and the battery fully charged.

Sample #1: RBO-C-12-140-LR-1U-W-2LRWP

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	
120	0.075	7	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	7	Yes

Sample #2: RBO-C-12-140-LG-1U-W-2LRWP

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	
119	0.074	7	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	7	Yes

Sample #3: RBO-C-12-140-LR-1U-W-4LRWP

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	
120	0.074	7	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	7	Yes

Sample #4: RBO-C-12-140-LG-1U-W-4LRWP

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	
120	0.075	7	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	7	Yes

Appendix C: Test report RBO-C-6 on illuminated exit signs for combo units

 CSA INTERNATIONAL	TEST REPORT
Client: Beghelli Canada	Date: July 8, 2013
Master Contract: 187981	Project: Input Rating for Robusto Combo Series RBO: (Sign + charger) Base Model: RBO-C-6-120-xx-yy-zz
Network:	Model no: xx=LED colour of sign LR or LG yy=Number of face and mounting 1U or 1W zz=Number of heads 1,2,3,4LRWP
Device: Unit Equipment for Emergency Lighting	
The subject device was tested for compliance with C22.2 No 141-10	
Tests performed at 60Hz, unless otherwise noted	
Tested by: Fan Yang, P.Eng.	Signature: 
Reviewed by: Peter Shiling	Signature: 

Test Instruments Used:	Accuracy of Instruments
Fluke 73 multimeter (75970170)	+/- 0.3% for DC Voltage
Kikusui DC Electronic Load PLZ1004W (PA001402)	+/- 0.2% for Constant Current Mode
Fluke 52 Thermometer J-type (6617140)	+/- 0.2% + 0.3 ⁰ C
Simpson AC Current Leakage Meter (5-115695)	+/- 0.5% for AC Current
Yokogawa WT110 Digital Power Meter (2534GA943J)	+/- 0.3% for DC Voltage and Current
Criterion Instrument AVC25V (7475)	+/- 0.5% for AC Voltage

According to IECEE-CTL Guide001 Part1 5.1, if all accuracy of instruments is within the range limit stated in IEC/ISO17025, the measurement result can be directly compared with the test limit to determine conformance with the requirement.

As mentioned in Part1 5.2, in situations where the above “accuracy method” does not apply, uncertainty of measurement values are needed to be calculated and reported along with the variables results obtained during testing.

Follow the procedures in IECEE-CTL Guide001 Part2 to calculate uncertainty of measurement.

1. Condition for Test: Clause 6.2

Charger and transformer model	6V High Power Charger #451002000, Transformer #400000100
Battery model	Sigmas Lead-acid #SP6-12-T2, Beghelli #500000008

Rating of battery	6V12Ah x 4
Input Voltage	120\277\347VAC
Nominal Voltage of battery	6V
Min. end of discharge voltage	5.0V at circuit board
Recharge time	1.5A
Time rating	48 hours
Charge current	90 mins
Lamp type / load	120W, Electronic load

21. Tests for Energy Performance – Actual Input Power: TIL B-75, Clause 2 – Type 3 exit signs containing an integral battery-charging system shall be tested with the charging system connected and the battery fully charged.

Sample #1: RBO-C-6-120-LR-1U-W-2LRWP

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	
120	0.083	8	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	8	Yes

Sample #2: RBO-C-6-120-LG-1U-W-2LRWP

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	
119	0.083	8	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	8	Yes

Sample #3: RBO-C-6-120-LR-1U-W-4LRWP

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	
120	0.083	8	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	8	Yes

Sample #4: RBO-C-6-120-LG-1U-W-4LRWP

Measured Voltage (Vrms)	Measured Current	Actual Power (W)	

	(Arms)		
120	0.082	8	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	N/A	
Single-sided EXIT w/charging circuit	10 W	8	Yes

Appendix D: Test report RBO on illuminated exit signs for exit signs units

 CSA INTERNATIONAL	TEST REPORT
Client: Beghelli Canada	Date: Aug 21, 2013
Master Contract: 187981	Project: Input Rating for Robusto Sign Series Base Model: RBO-E or RBO-RM
Network:	Model no: E=EXIT sign, colour of sign LR or LG RM=Running Man sign Single or double faces sign use the same LED board
Device: Unit Equipment for Emergency Lighting	
The subject device was tested for compliance with C22.2 No 141-10	
Tests performed at 60Hz, unless otherwise noted	
Tested by: Fan Yang, P.Eng.	Signature: 
Reviewed by: Peter Shiling	Signature: 

Test Instruments Used:	Accuracy of Instruments
Fluke 73 multimeter (75970170)	+/- 0.3% for DC Voltage
Kikusui DC Electronic Load PLZ1004W (PA001402)	+/- 0.2% for Constant Current Mode
Fluke 52 Thermometer J-type (6617140)	+/- 0.2% + 0.3 ⁰ C
Simpson AC Current Leakage Meter (5-115695)	+/- 0.5% for AC Current
Yokogawa WT110 Digital Power Meter (2534GA943J)	+/- 0.3% for DC Voltage and Current
Criterion Instrument AVC25V (7475)	+/- 0.5% for AC Voltage

According to IECEE-CTL Guide001 Part1 5.1, if all accuracy of instruments is within the range limit stated in IEC/ISO17025, the measurement result can be directly compared with the test limit to determine conformance with the requirement.

As mentioned in Part1 5.2, in situations where the above “accuracy method” does not apply, uncertainty of measurement values are needed to be calculated and reported along with the variables results obtained during testing.

Follow the procedures in IECEE-CTL Guide001 Part2 to calculate uncertainty of measurement.

1. Condition for Test: Clause 6.2

Charger and transformer model	LED board models tested: RBO-E-SALG1, RBO-E-HTLG1, RBO-E HTLG1UDC
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Battery model	
Rating of battery	
Input Voltage	120\277\347VAC
Nominal Voltage of battery	4.8V Ni-Cd
Min. end of discharge voltage	4.0V at circuit board
Recharge time	48 hours
Time rating	90 mins
Charge current	65mA
Lamp type / load	W, Electronic load

21. Tests for Energy Performance – Actual Input Power: TIL B-75, Clause 2 – Type 3 exit signs containing an integral battery-charging system shall be tested with the charging system connected and the battery fully charged.

Single or double faces use the same power consumptions

Sample #1: RBO-E-SALG1

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	Battery-powered sign
120	0.12	1.4	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	1.4	Yes
Single-sided EXIT w/charging circuit	10 W	N/A	

Sample #2: RBO-E-HTLG1

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	AC only sign
119	0.029	0.67	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	0.67	Yes
Single-sided EXIT w/charging circuit	10 W	N/A	

Sample #3: RBO-E HTLG1UDC

Measured Voltage (Vrms)	Measured Current (Arms)	Actual Power (W)	Universal DC sign
120	0.028	0.55	

Type of sign	Max Actual Input Power	Measured Input Power	Compliance
Single-sided EXIT	5 W	0.55	Yes
Single-sided EXIT w/charging circuit	10 W	N/A	

