



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC  
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0499-10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Crucial Power Products

Manufacturer's Technical Representative: Sherri Shahsavari

Mailing Address: 14000 S Broadway, Los Angeles, CA 90061

Telephone: 323.721.5017 x412 Email: [sherris@onlinepower.com](mailto:sherris@onlinepower.com)

Product Information

Product Name: Wave Rider 1 / Wave Rider 3

Product Type: Emergency Lighting Inverter

Product Model Number: See Attachment

(List all unique product identification numbers and/or part numbers)

General Description: Single phase or three phase emergency lighting inverter with battery backup inside of a carbon steel electrical cabinet enclosure. Seismic enhancements made to the test units required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Base mounted – rigid.

Applicant Information

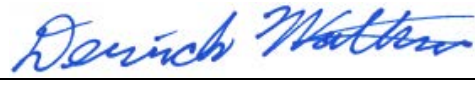
Applicant Company Name: TRU Compliance, LLC

Contact Person: Derrick Watkins, Ph.D., S.E.

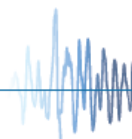
Mailing Address: 960 SW Disk Drive, Suite 104, Bend, OR 97702

Telephone: 844.878.0200 Email: [dwatkins@trucompliance.com](mailto:dwatkins@trucompliance.com)

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant:  Date: 1/13/2017

Title: Executive Vice President Company Name: TRU Compliance, LLC





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION**

OSH-FD-759 (REV 12/16/15)

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**California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)**

Company Name: TRU Compliance, LLC

Name: Derrick Watkins, Ph.D., S.E. California License Number: S5257

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200 Email: [dwatkins@trucompliance.com](mailto:dwatkins@trucompliance.com)

**Supports and Attachments Preapproval**

- ☐ Supports and attachments are preapproved under OPM-  
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- ☒ Supports and attachments are not preapproved

**Certification Method**

- ☒ Testing in accordance with: ☒ ICC-ES AC156
- ☐ Other (Please Specify): \_\_\_\_\_

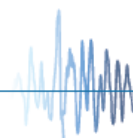
**Testing Laboratory**

Company Name: Pacific Earthquake Engineering Research Center (PEER)

Contact Name: Nathaniel Knight

Mailing Address: 1301 South 46th Street, Bldg. 420, Richmond, CA 94804

Telephone: (510) 642-3437 Email: [peer\\_center@berkeley.edu](mailto:peer_center@berkeley.edu)





OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
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OSH-FD-759 (REV 12/16/15)

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**Seismic Parameters**

Design in accordance with ASCE 7-10 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 1.44 for  $S_{DS} = 2.0g$  @  $z/h = 1.0$ ; 1.35 for  $S_{DS} = 3.0g$  @  $z/h = 0.0$

$S_{DS}$  (Design spectral response acceleration at short period, g) = 2.0 for  $z/h = 1.0$ ; 3.0 for  $z/h = 0.0$

$a_p$  (In-structure equipment or component amplification factor) = 1.0

$R_p$  (Equipment or component response modification factor) = 2.5

$\Omega_0$  (System overstrength factor) = 2.0

$I_p$  (Importance factor) = 1.5

$z/h$  (Height factor ratio) = 1.0 for  $S_{DS} = 2.0g$ ; 0.0 for  $S_{DS} = 3.0g$

Equipment or Component Natural Frequencies (Hz) = See Attachment

Overall dimensions and weight (or range thereof) = See Attachment

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (VW) = \_\_\_\_\_

$S_{DS}$  (Design spectral response acceleration at short period, g) = \_\_\_\_\_

$S_{D1}$  (Design spectral response acceleration at 1 second period, g) = \_\_\_\_\_

$R$  (Response modification coefficient) = \_\_\_\_\_

$\Omega_0$  (System overstrength factor) = \_\_\_\_\_

$C_d$  (Deflection amplification factor) = \_\_\_\_\_

$I_p$  (Importance factor) = 1.5

Height to Center of Gravity above base = \_\_\_\_\_

Equipment or Component Natural Frequencies (Hz) = \_\_\_\_\_

Overall dimensions and weight (or range thereof) = \_\_\_\_\_

Tank(s) designed in accordance with ASME BPVC, 2015: ☐ Yes ☒ No

**List of Attachments Supporting Special Seismic Certification**

☒ Test Report(s) ☐ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☒ Other(s) (Please Specify): Attachment

**OSHDP Approval (For Office Use Only) – Approval Expires on December 31, 2022**

Signature: M. R. Karim Date: 1/23/17

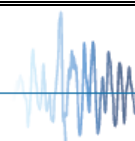
Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to :  $S_{DS}$  (g) = See Above  $z/h$  = See Above

Condition of Approval (if applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products                                                                                                                                              |                 |                                      |       |                                                                |             | <b>TABLE 1</b> |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------|-------|----------------------------------------------------------------|-------------|----------------|---------|
| <b>Model Line:</b> Wave Rider 1                                                                                                                                                          |                 |                                      |       |                                                                |             |                |         |
| <b>Certified Product Construction Summary:</b><br><b>Base &amp; Top:</b> 12 GA. carbon steel, <b>Back &amp; Sides:</b> 14 GA. carbon steel, <b>Doors:</b> 16 GA. carbon steel.           |                 |                                      |       |                                                                |             |                |         |
| <b>Certified Options Summary:</b><br>Input/Output voltage: 120-480VAC.                                                                                                                   |                 |                                      |       |                                                                |             |                |         |
| <b>Mounting Configuration:</b><br>Base mounted - rigid<br>Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. |                 |                                      |       |                                                                |             |                |         |
| <b>Building Code: CBC 2016</b>                                                                                                                                                           |                 | <b>Seismic Certification Limits:</b> |       | $S_{DS} = 2.0 \quad z/h=1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0$ |             | $I_P = 1.5$    |         |
| Model Line                                                                                                                                                                               | Model           | Dimensions (in)                      |       |                                                                | Weight (lb) | Notes          | UUT     |
|                                                                                                                                                                                          |                 | Depth                                | Width | Height                                                         |             |                |         |
| Wave Rider 1<br>Cabinet Type A                                                                                                                                                           | SV-WR3.0A0100N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0A5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0B1300N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0B5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0D0400N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0D5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0R2500N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0R5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0H1100T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0H2500T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0H5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR3.0R1100T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0A0100N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0A5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0B1300N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0B5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0D0400N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0D5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0R2500N1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0R5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0H1100T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0H2500T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0H5800T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |
|                                                                                                                                                                                          | SV-WR5.0R1100T1 | 18                                   | 39    | 68                                                             | 1,284       |                | extrap. |

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products                                                                                                                                              |                 |                                      |       |        |                                                                | <b>TABLE 1</b> |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------|-------|--------|----------------------------------------------------------------|----------------|-------------|
| <b>Model Line:</b> Wave Rider 1                                                                                                                                                          |                 |                                      |       |        |                                                                |                |             |
| <b>Certified Product Construction Summary:</b><br><b>Base &amp; Top:</b> 12 GA. carbon steel, <b>Back &amp; Sides:</b> 14 GA. carbon steel, <b>Doors:</b> 16 GA. carbon steel.           |                 |                                      |       |        |                                                                |                |             |
| <b>Certified Options Summary:</b><br>Input/Output voltage: 120-480VAC.                                                                                                                   |                 |                                      |       |        |                                                                |                |             |
| <b>Mounting Configuration:</b><br>Base mounted - rigid<br>Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. |                 |                                      |       |        |                                                                |                |             |
| <b>Building Code: CBC 2016</b>                                                                                                                                                           |                 | <b>Seismic Certification Limits:</b> |       |        | $S_{DS} = 2.0 \quad z/h=1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0$ |                | $I_P = 1.5$ |
| Model Line                                                                                                                                                                               | Model           | Dimensions (in)                      |       |        | Weight (lb)                                                    | Notes          | UUT         |
|                                                                                                                                                                                          |                 | Depth                                | Width | Height |                                                                |                |             |
| Wave Rider 1<br>Cabinet Type A                                                                                                                                                           | SV-WR6.0A0100N1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0A5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0B1300N1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0B5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0D0400N1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0D5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0R2500N1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0R5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0H1100T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0H2500T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0H5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR6.0R1100T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5A0100T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5A5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5B1300N1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5B5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5D0400N1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5D5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5R2500N1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5R5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5H1100T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5H2500T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5H5800T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |
|                                                                                                                                                                                          | SV-WR7.5R1100T1 | 18                                   | 39    | 68     | 1,340                                                          |                | extrap.     |

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products                                                                                                                                              |                 |                                      |       |        |                                                                | <b>TABLE 1</b>         |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------|-------|--------|----------------------------------------------------------------|------------------------|-------------|
| <b>Model Line:</b> Wave Rider 1                                                                                                                                                          |                 |                                      |       |        |                                                                |                        |             |
| <b>Certified Product Construction Summary:</b><br><b>Base &amp; Top:</b> 12 GA. carbon steel, <b>Back &amp; Sides:</b> 14 GA. carbon steel, <b>Doors:</b> 16 GA. carbon steel.           |                 |                                      |       |        |                                                                |                        |             |
| <b>Certified Options Summary:</b><br>Input/Output voltage: 120-480VAC.                                                                                                                   |                 |                                      |       |        |                                                                |                        |             |
| <b>Mounting Configuration:</b><br>Base mounted - rigid<br>Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. |                 |                                      |       |        |                                                                |                        |             |
| <b>Building Code: CBC 2016</b>                                                                                                                                                           |                 | <b>Seismic Certification Limits:</b> |       |        | $S_{DS} = 2.0 \quad z/h=1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0$ |                        | $I_P = 1.5$ |
| Model Line                                                                                                                                                                               | Model           | Dimensions (in)                      |       |        | Weight (lb)                                                    | Notes                  | UUT         |
|                                                                                                                                                                                          |                 | Depth                                | Width | Height |                                                                |                        |             |
| Wave Rider 1<br>Cabinet Type A                                                                                                                                                           | SV-WR8.0A0100T1 | 18                                   | 39    | 68     | 1,795                                                          | UUT: 120V in, 120V out | 1           |
|                                                                                                                                                                                          | SV-WR8.0A5800T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0B1300N1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0B5800T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0D0400N1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0D5800T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0R2500N1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0R5800T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0H1100T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0H2500T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0H5800T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR8.0R1100T1 | 18                                   | 39    | 68     | 1,795                                                          |                        | interp.     |
| Wave Rider 1<br>Cabinet Type B                                                                                                                                                           | SV-WR010A0100T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010A5800T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010B1300N1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010B5800T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010D0400N1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010D5800T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010R2500N1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010R5800T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010H1100T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010H2500T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010H5800T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |
|                                                                                                                                                                                          | SV-WR010R1100T1 | 30.5                                 | 51    | 70     | 2,438                                                          |                        | interp.     |

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products                                                                                                                                              |                 |                                      |       |                                                                |             | <b>TABLE 1</b> |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------|-------|----------------------------------------------------------------|-------------|----------------|---------|
| <b>Model Line:</b> Wave Rider 1                                                                                                                                                          |                 |                                      |       |                                                                |             |                |         |
| <b>Certified Product Construction Summary:</b><br><b>Base &amp; Top:</b> 12 GA. carbon steel, <b>Back &amp; Sides:</b> 14 GA. carbon steel, <b>Doors:</b> 16 GA. carbon steel.           |                 |                                      |       |                                                                |             |                |         |
| <b>Certified Options Summary:</b><br>Input/Output voltage: 120-480VAC.                                                                                                                   |                 |                                      |       |                                                                |             |                |         |
| <b>Mounting Configuration:</b><br>Base mounted - rigid<br>Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. |                 |                                      |       |                                                                |             |                |         |
| <b>Building Code: CBC 2016</b>                                                                                                                                                           |                 | <b>Seismic Certification Limits:</b> |       | $S_{DS} = 2.0 \quad z/h=1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0$ |             | $I_P = 1.5$    |         |
| Model Line                                                                                                                                                                               | Model           | Dimensions (in)                      |       |                                                                | Weight (lb) | Notes          | UUT     |
|                                                                                                                                                                                          |                 | Depth                                | Width | Height                                                         |             |                |         |
| Wave Rider 1<br>Cabinet Type B                                                                                                                                                           | SV-WR012A010T1  | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012A5800T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012B1300N1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012B5800T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012D0400N1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012D5800T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012R2500N1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012R2800T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012H1100T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012H2500T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012H5800T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-WR012R1100T1 | 30.5                                 | 51    | 70                                                             | 3,681       |                | interp. |
|                                                                                                                                                                                          | SV-PW015A0100T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015A5800T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015B1300N1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015B5800T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015D0400N1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015D5800T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015R2500N1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015R5800T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015H1100T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015H2500T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015H5800T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |
|                                                                                                                                                                                          | SV-WR015R1100T1 | 30.5                                 | 51    | 70                                                             | 3,852       |                | interp. |

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products                                                                                                                                              |                 |                                      |       |                                                                |             | <b>TABLE 1</b>         |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------|-------|----------------------------------------------------------------|-------------|------------------------|---------|
| <b>Model Line:</b> Wave Rider 1                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
| <b>Certified Product Construction Summary:</b><br><b>Base &amp; Top:</b> 12 GA. carbon steel, <b>Back &amp; Sides:</b> 14 GA. carbon steel, <b>Doors:</b> 16 GA. carbon steel.           |                 |                                      |       |                                                                |             |                        |         |
| <b>Certified Options Summary:</b><br>Input/Output voltage: 120-480VAC.                                                                                                                   |                 |                                      |       |                                                                |             |                        |         |
| <b>Mounting Configuration:</b><br>Base mounted - rigid<br>Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. |                 |                                      |       |                                                                |             |                        |         |
| <b>Building Code: CBC 2016</b>                                                                                                                                                           |                 | <b>Seismic Certification Limits:</b> |       | $S_{DS} = 2.0 \quad z/h=1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0$ |             | $I_P = 1.5$            |         |
| Model Line                                                                                                                                                                               | Model           | Dimensions (in)                      |       |                                                                | Weight (lb) | Notes                  | UUT     |
|                                                                                                                                                                                          |                 | Depth                                | Width | Height                                                         |             |                        |         |
| Wave Rider 1<br>Cabinet Type B                                                                                                                                                           | SV-PW017A0100T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017A5800T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017B1300N1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017B5800T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017D0400N1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017D5800T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017R2500N1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017R5800T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017H1100T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017H2500T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017H5800T1 | 30.5                                 | 51    | 70                                                             | 4,512       |                        | interp. |
|                                                                                                                                                                                          | SV-WR017R1100T1 | 30.5                                 | 51    | 70                                                             | 4,512       | UUT: 277V in, 480V out | 2       |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |
|                                                                                                                                                                                          |                 |                                      |       |                                                                |             |                        |         |



# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products                                                                                                                                              |                    |                                      |       |                                                                |             | <b>TABLE 2</b>              |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------|-------|----------------------------------------------------------------|-------------|-----------------------------|---------|
| <b>Model Line:</b> Wave Rider 3                                                                                                                                                          |                    |                                      |       |                                                                |             |                             |         |
| <b>Certified Product Construction Summary:</b><br><b>Base &amp; Top:</b> 12 GA. carbon steel, <b>Back &amp; Sides:</b> 14 GA. carbon steel, <b>Doors:</b> 16 GA. carbon steel.           |                    |                                      |       |                                                                |             |                             |         |
| <b>Certified Options Summary:</b><br>Input: 208Y/120V ~ 480Y/277<br>Output: 208Y/120V ~ 480Y/277                                                                                         |                    |                                      |       |                                                                |             |                             |         |
| <b>Mounting Configuration:</b><br>Base mounted - rigid<br>Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. |                    |                                      |       |                                                                |             |                             |         |
| <b>Building Code: CBC 2016</b>                                                                                                                                                           |                    | <b>Seismic Certification Limits:</b> |       | $S_{DS} = 2.0 \quad z/h=1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0$ |             | $I_P = 1.5$                 |         |
| Model Line                                                                                                                                                                               | Model              | Dimensions (in)                      |       |                                                                | Weight (lb) | Notes                       | UUT     |
|                                                                                                                                                                                          |                    | Depth                                | Width | Height                                                         |             |                             |         |
| Wave Rider 3                                                                                                                                                                             | SV-WR010B05LHT3-VA | 18                                   | 39    | 68                                                             | 1,083       | 208Y/120V in, 208Y/120V out | 3       |
|                                                                                                                                                                                          | SV-WR010B09LHT3-VA | 18                                   | 39    | 68                                                             | 1,083       |                             | interp. |
|                                                                                                                                                                                          | SV-WR010H09LHT3-VA | 18                                   | 39    | 68                                                             | 1,083       |                             | interp. |
|                                                                                                                                                                                          | SV-WR010H05LHT3-VA | 18                                   | 39    | 68                                                             | 1,083       |                             | interp. |
|                                                                                                                                                                                          | SV-WR015B05LHT3-VA | 18                                   | 39    | 68                                                             | 1,446       |                             | interp. |
|                                                                                                                                                                                          | SV-WR015B09LHT3-VA | 18                                   | 39    | 68                                                             | 1,446       |                             | interp. |
|                                                                                                                                                                                          | SV-WR015H09LHT3-VA | 18                                   | 39    | 68                                                             | 1,446       |                             | interp. |
|                                                                                                                                                                                          | SV-WR015H05LHT3-VA | 18                                   | 39    | 68                                                             | 1,446       |                             | interp. |
|                                                                                                                                                                                          | SV-WR020B05LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR020B09LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR020H09LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR020H05LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR025B05LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR025B09LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR025H09LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR025H05LHT3-VA | 18                                   | 39    | 68                                                             | 1,679       |                             | interp. |
|                                                                                                                                                                                          | SV-WR030B05LHT3-VA | 18                                   | 39    | 68                                                             | 1,719       |                             | interp. |
|                                                                                                                                                                                          | SV-WR030B09LHT3-VA | 18                                   | 39    | 68                                                             | 1,719       |                             | interp. |
|                                                                                                                                                                                          | SV-WR030H09LHT3-VA | 18                                   | 39    | 68                                                             | 1,719       |                             | interp. |
|                                                                                                                                                                                          | SV-WR030H05LHT3-VA | 18                                   | 39    | 68                                                             | 1,719       |                             | interp. |
|                                                                                                                                                                                          | SV-WR040B05LHT3-VA | 18                                   | 39    | 68                                                             | 2,066       |                             | interp. |
|                                                                                                                                                                                          | SV-WR040B09LHT3-VA | 18                                   | 39    | 68                                                             | 2,066       |                             | interp. |
|                                                                                                                                                                                          | SV-WR040H09LHT3-VA | 18                                   | 39    | 68                                                             | 2,066       |                             | interp. |
|                                                                                                                                                                                          | SV-WR040H05LHT3-VA | 18                                   | 39    | 68                                                             | 2,066       |                             | interp. |

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**TRU PROJECT NO. 15052**

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products |                                      | <b>Table Description:</b> Batteries  |                            |                                                          | <b>TABLE 3</b> |
|---------------------------------------------|--------------------------------------|--------------------------------------|----------------------------|----------------------------------------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                                      |                                      |                            |                                                          |                |
| <b>Building Code:</b> CBC 2016              |                                      | <b>Seismic Certification Limits:</b> |                            | $S_{DS} = 2.0$ $z/h = 1.0$<br>$S_{DS} = 3.0$ $z/h = 0.0$ | $I_p = 1.5$    |
| Component Type                              | Manufacturer                         | Model                                | Description                | Notes                                                    | UUT            |
| Battery                                     | Exide Technologies                   | S12V285F                             | 12V, 285-270WPC, lead acid |                                                          | 2              |
|                                             |                                      | S12V300F                             | 12V, 306-290WPC, lead acid |                                                          | interp.        |
|                                             |                                      | S12V370NGF                           | 12V, 373-353WPC, lead acid |                                                          | interp.        |
|                                             |                                      | S12V550NGF                           | 12V, 550-521WPC, lead acid |                                                          | 5              |
|                                             |                                      | M12V105FT                            | 12V, 100Ah, lead acid      |                                                          | 5              |
|                                             |                                      | M12V155FT                            | 12V, 150Ah, lead acid      |                                                          | interp.        |
|                                             |                                      | M12V180FT                            | 12V, 175Ah, lead acid      |                                                          | 5              |
|                                             | Vision Group                         | UNA12-370                            | 12V, 95 Ah, lead acid      |                                                          | 1              |
|                                             |                                      | UNA12-420                            | 12V, 106 Ah, lead acid     |                                                          | 2              |
|                                             | Power-Sonic Co.                      | PHR-12350                            | 12V, 95 Ah, lead acid      |                                                          | 1              |
|                                             | MK (Unigy)                           | HR7500ET                             | 12V, 750 WPC, lead acid    |                                                          | 5              |
|                                             | CSB Battery/Hitachi Chemical Company | HRL12330WFR                          | 12V, 330V, lead acid       |                                                          | 1              |
|                                             |                                      | HRL12540WFR                          | 12V, 540W, lead acid       |                                                          | 5              |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |
|                                             |                                      |                                      |                            |                                                          |                |

# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products |                   | <b>Table Description:</b> Transformers |                                                |                                                          | <b>TABLE 4</b> |
|---------------------------------------------|-------------------|----------------------------------------|------------------------------------------------|----------------------------------------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                   |                                        |                                                |                                                          |                |
| <b>Building Code:</b> CBC 2016              |                   | <b>Seismic Certification Limits:</b>   |                                                | $S_{DS} = 2.0$ $z/h = 1.0$<br>$S_{DS} = 3.0$ $z/h = 0.0$ | $I_P = 1.5$    |
| Component Type                              | Manufacturer      | Model                                  | Description                                    | Notes                                                    | UUT            |
| Transformer                                 | OnLine Power Inc. | 1400-105                               | 50VA, Cu windings, 120-277V in, 120V out       |                                                          | extrap.        |
|                                             |                   | 1400-110                               | 130VA, Cu windings, 208-277V in, 120V out      |                                                          | extrap.        |
|                                             |                   | 1400-111                               | 60VA, Cu windings, 208-480V in, 120V out       |                                                          | extrap.        |
|                                             |                   | 1400-113                               | 200VA, Cu windings, 120-277V in, 120V out      |                                                          | 2              |
|                                             |                   | 1400-114                               | 130VA, Cu windings, 208-480V in, 120V out      |                                                          | 3              |
|                                             |                   | 1450-1473-02                           | 5kVA, Cu windings, 120-277V in, 120-277V out   |                                                          | interp.        |
|                                             |                   | 1450-1613-01                           | 7.5kVA, Cu windings, 208-277V in, 208-277V out |                                                          | interp.        |
|                                             |                   | 1450-1661-01                           | 7.5kVA, Cu windings, 480V in, 240-277V out     |                                                          | interp.        |
|                                             |                   | 1450-1473-04                           | 10kVA, Cu windings, 120-277V in, 120-277V out  |                                                          | interp.        |
|                                             |                   | 1450-1473-06                           | 15kVA, Cu windings, 120-277V in, 120-277V out  |                                                          | interp.        |
|                                             |                   | 1450-1629-02                           | 15kVA, Cu windings, 120V in, 240V out          |                                                          | interp.        |
|                                             |                   | 1450-1507-02                           | 15kVA, Cu windings, 158V in, 120V out          |                                                          | 3              |
|                                             |                   | 1450-1508-02                           | 15kVA, Cu windings, 158V in, 277V out          |                                                          | interp.        |
|                                             |                   | 1450-1613-02                           | 15kVA, Cu windings, 208-277V in, 208-277V out  |                                                          | interp.        |
|                                             |                   | 1450-1661-02                           | 15kVA, Cu windings, 480V in, 240-277V out      |                                                          | interp.        |
|                                             |                   | 1450-1613-03                           | 18kVA, Cu windings, 208-277V in, 208-277V out  |                                                          | interp.        |
|                                             |                   | 1450-1473-07                           | 20kVA, Cu windings, 120-277V in, 120-277V out  |                                                          | interp.        |
|                                             |                   | 1450-1629-03                           | 20kVA, Cu windings, 120V in, 240V out          |                                                          | interp.        |
|                                             |                   | 1450-1507-03                           | 20kVA, Cu windings, 158V in, 120V out          |                                                          | interp.        |
|                                             |                   | 1450-1508-03                           | 20kVA, Cu windings, 158V in, 277V out          |                                                          | interp.        |
|                                             |                   | 1450-1613-04                           | 20kVA, Cu windings, 208-277V in, 208-277V out  |                                                          | 2              |
|                                             |                   | 1450-1661-03                           | 20kVA, Cu windings, 480V in, 240-277V out      |                                                          | 2              |
|                                             |                   | 1450-1506-06                           | 23kVA, Cu windings, 120V in, 127-220V out      |                                                          | 3              |

# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

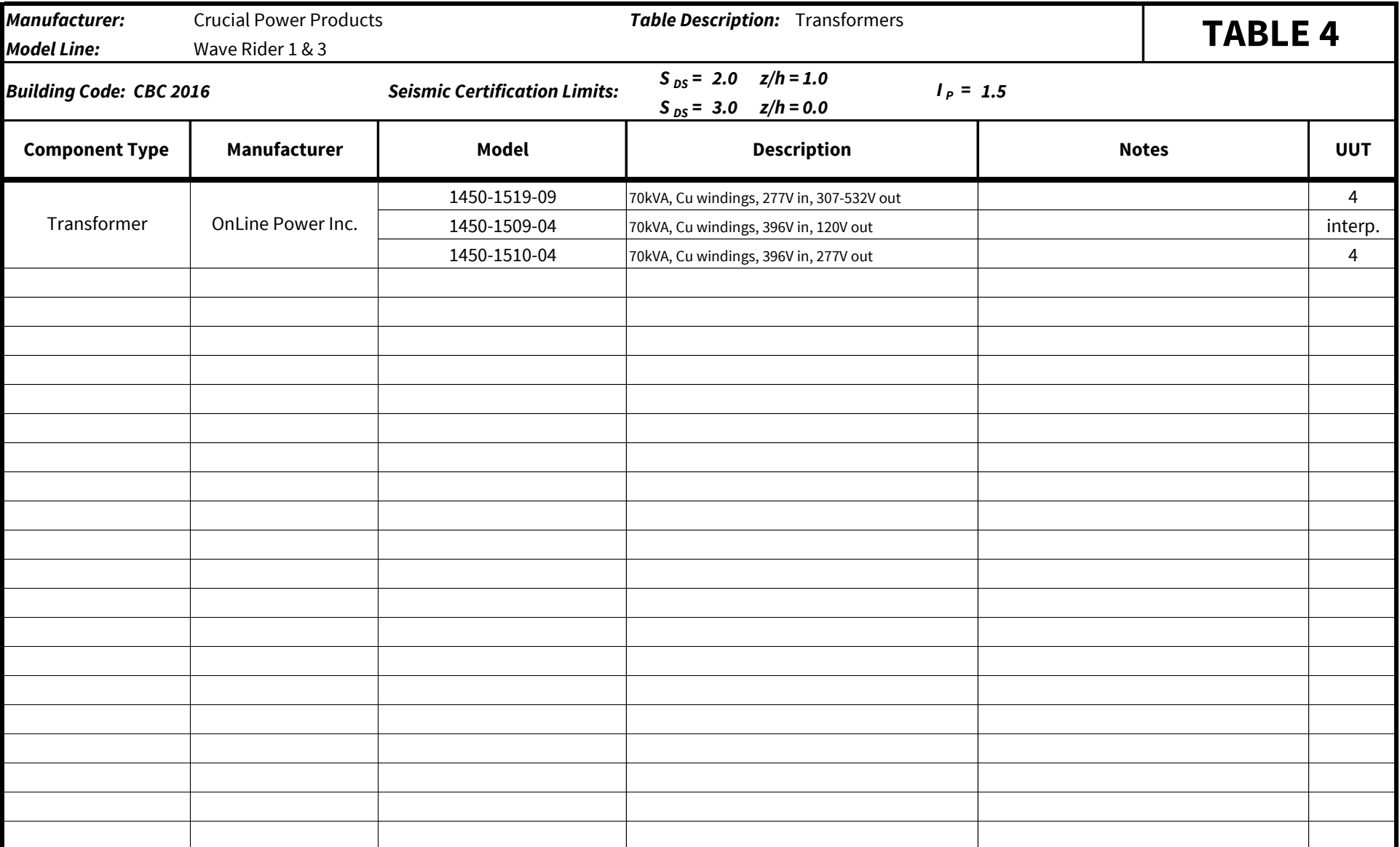
TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products |                   | <b>Table Description:</b> Transformers |                                           |                                                          | <b>TABLE 4</b> |
|---------------------------------------------|-------------------|----------------------------------------|-------------------------------------------|----------------------------------------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                   |                                        |                                           |                                                          |                |
| <b>Building Code:</b> CBC 2016              |                   | <b>Seismic Certification Limits:</b>   |                                           | $S_{DS} = 2.0$ $z/h = 1.0$<br>$S_{DS} = 3.0$ $z/h = 0.0$ | $I_P = 1.5$    |
| Component Type                              | Manufacturer      | Model                                  | Description                               | Notes                                                    | UUT            |
| Transformer                                 | OnLine Power Inc. | 1450-1620-06                           | 23kVA, Cu windings, 120V in, 277-220V out |                                                          | interp.        |
|                                             |                   | 1450-1525-06                           | 23kVA, Cu windings, 277V in, 120-220V out |                                                          | interp.        |
|                                             |                   | 1450-1619-06                           | 23kVA, Cu windings, 277V in, 120-220V out |                                                          | interp.        |
|                                             |                   | 1450-1519-06                           | 23kVA, Cu windings, 277V in, 127-220V out |                                                          | interp.        |
|                                             |                   | 1450-1509-01                           | 30kVA, Cu windings, 213V in, 120V out     |                                                          | interp.        |
|                                             |                   | 1450-1510-01                           | 30kVA, Cu windings, 213V in, 277V out     |                                                          | interp.        |
|                                             |                   | 1450-1509-02                           | 40kVA, Cu windings, 213V in, 120V out     |                                                          | interp.        |
|                                             |                   | 1450-1510-02                           | 40kVA, Cu windings, 213V in, 277V out     |                                                          | interp.        |
|                                             |                   | 1450-1506-07                           | 45kVA, Cu windings, 120V in, 173-300V out |                                                          | interp.        |
|                                             |                   | 1450-1620-07                           | 45kVA, Cu windings, 120V in, 277-300V out |                                                          | interp.        |
|                                             |                   | 1450-1525-07                           | 45kVA, Cu windings, 277V in, 120-300V out |                                                          | interp.        |
|                                             |                   | 1450-1619-07                           | 45kVA, Cu windings, 277V in, 120-300V out |                                                          | interp.        |
|                                             |                   | 1450-1519-07                           | 45kVA, Cu windings, 277V in, 173-300V out |                                                          | interp.        |
|                                             |                   | 1450-1509-03                           | 50kVA, Cu windings, 396V in, 120V out     |                                                          | interp.        |
|                                             |                   | 1450-1510-03                           | 50kVA, Cu windings, 396V in, 277V out     |                                                          | interp.        |
|                                             |                   | 1450-1620-08                           | 58kVA, Cu windings, 120V in, 277-532V out |                                                          | interp.        |
|                                             |                   | 1450-1506-08                           | 58kVA, Cu windings, 120V in, 307-532V out |                                                          | interp.        |
|                                             |                   | 1450-1525-08                           | 58kVA, Cu windings, 277V in, 120-532V out |                                                          | interp.        |
|                                             |                   | 1450-1619-08                           | 58kVA, Cu windings, 277V in, 120-532V out |                                                          | interp.        |
|                                             |                   | 1450-1519-08                           | 58kVA, Cu windings, 277V in, 307-532V out |                                                          | interp.        |
|                                             |                   | 1450-1506-09                           | 70kVA, Cu windings, 120V in, 307-532V out |                                                          | interp.        |
|                                             |                   | 1450-1525-09                           | 70kVA, Cu windings, 277V in, 120-532V out |                                                          | interp.        |
|                                             |                   | 1450-1619-09                           | 70kVA, Cu windings, 277V in, 120-532V out |                                                          | interp.        |

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**TRU PROJECT NO. 15052**



# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products |                    | <b>Table Description:</b> Circuit Breakers |             |                                                          | <b>TABLE 5</b> |
|---------------------------------------------|--------------------|--------------------------------------------|-------------|----------------------------------------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                    |                                            |             |                                                          |                |
| <b>Building Code:</b> CBC 2016              |                    | <b>Seismic Certification Limits:</b>       |             | $S_{DS} = 2.0$ $z/h = 1.0$<br>$S_{DS} = 3.0$ $z/h = 0.0$ | $I_P = 1.5$    |
| Component Type                              | Manufacturer       | Model                                      | Description | Notes                                                    | UUT            |
| Circuit Breaker                             | Cutler Hammer (ED) | ED2125L                                    | 2P, 125A    |                                                          | 1              |
|                                             |                    | ED2150L                                    | 2P, 150A    |                                                          | interp.        |
|                                             |                    | ED2175L                                    | 2P, 175A    |                                                          | interp.        |
|                                             |                    | ED2200L                                    | 2P, 200A    |                                                          | 1              |
|                                             |                    | ED3125L                                    | 3P, 125A    |                                                          | interp.        |
|                                             |                    | ED3150L                                    | 3P, 150A    |                                                          | interp.        |
|                                             |                    | ED3175L                                    | 3P, 175A    |                                                          | 4              |
|                                             | Cutler Hammer (QC) | QC1030                                     | 1P, 30A     |                                                          | 1              |
|                                             |                    | QC1050                                     | 1P, 50A     |                                                          | interp.        |
|                                             |                    | QC1100                                     | 1P, 100A    |                                                          | interp.        |
|                                             |                    | QC2015H                                    | 2P, 15A     |                                                          | interp.        |
|                                             |                    | QC2020H                                    | 2P, 20A     |                                                          | 1              |
|                                             |                    | QC2025H                                    | 2P, 25A     |                                                          | interp.        |
|                                             |                    | QC2030H                                    | 2P, 30A     |                                                          | interp.        |
|                                             |                    | QC2040H                                    | 2P, 40A     |                                                          | interp.        |
|                                             |                    | QC2050H                                    | 2P, 50A     |                                                          | 1              |
|                                             |                    | QC2060H                                    | 2P, 60A     |                                                          | interp.        |
|                                             |                    | QC2070                                     | 2P, 70A     |                                                          | interp.        |
|                                             |                    | QC2080                                     | 2P, 80A     |                                                          | interp.        |
|                                             |                    | QC2090                                     | 2P, 90A     |                                                          | interp.        |
|                                             |                    | QC2100H                                    | 2P, 100A    |                                                          | interp.        |
|                                             |                    | QC3035H                                    | 3P, 35A     |                                                          | 3              |
|                                             |                    | QC3050H                                    | 3P, 50A     |                                                          | interp.        |

# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products |                     | <b>Table Description:</b> Circuit Breakers |             |                                                          | <b>TABLE 5</b> |
|---------------------------------------------|---------------------|--------------------------------------------|-------------|----------------------------------------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                     |                                            |             |                                                          |                |
| <b>Building Code:</b> CBC 2016              |                     | <b>Seismic Certification Limits:</b>       |             | $S_{DS} = 2.0$ $z/h = 1.0$<br>$S_{DS} = 3.0$ $z/h = 0.0$ | $I_P = 1.5$    |
| Component Type                              | Manufacturer        | Model                                      | Description | Notes                                                    | UUT            |
| Circuit Breaker                             | Cutler Hammer (QC)  | QC3070H                                    | 3P, 70A     |                                                          | interp.        |
|                                             |                     | QC3080H                                    | 3P, 80A     |                                                          | interp.        |
|                                             |                     | QC3090H                                    | 3P, 90A     |                                                          | interp.        |
|                                             |                     | QC3100H                                    | 3P, 100A    |                                                          | 3              |
|                                             | Cutler Hammer (GHC) | GHC1015                                    | 1P, 15A     |                                                          | 1              |
|                                             |                     | GHC1025                                    | 1P, 25A     |                                                          | 1              |
|                                             |                     | GHC1035                                    | 1P, 35A     |                                                          | interp.        |
|                                             |                     | GHC1040                                    | 1P, 40A     |                                                          | interp.        |
|                                             |                     | GHC1050                                    | 1P, 50A     |                                                          | interp.        |
|                                             |                     | GHC1060                                    | 1P, 60A     |                                                          | interp.        |
|                                             |                     | GHC1080                                    | 1P, 80A     |                                                          | interp.        |
|                                             |                     | GHC1100                                    | 1P, 100A    |                                                          | 2              |
|                                             |                     | GHC3020                                    | 3P, 20A     |                                                          | interp.        |
|                                             |                     | GHC3030                                    | 3P, 30A     |                                                          | interp.        |
|                                             |                     | GHC3040                                    | 3P, 40A     |                                                          | 3              |
|                                             |                     | GHC3060                                    | 3P, 60A     |                                                          | interp.        |
|                                             |                     | GHC3080                                    | 3P, 80A     |                                                          | 4              |
|                                             |                     | GHC3100                                    | 3P, 100A    |                                                          | 3              |
|                                             | Cutler Hammer (EGE) | EGE3020FFG                                 | 3P, 20A     |                                                          | 4              |
|                                             |                     | EGE3030FFG                                 | 3P, 30A     |                                                          | interp.        |
|                                             |                     | EGE3040FFG                                 | 3P, 40A     |                                                          | interp.        |
|                                             |                     | EGE3050FFG                                 | 3P, 50A     |                                                          | interp.        |
|                                             |                     | EGE3070FFG                                 | 3P, 70A     |                                                          | interp.        |



# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products |                     | <b>Table Description:</b> Circuit Breakers |             |                                                                                  | <b>TABLE 5</b> |
|---------------------------------------------|---------------------|--------------------------------------------|-------------|----------------------------------------------------------------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                     |                                            |             |                                                                                  |                |
| <b>Building Code:</b> CBC 2016              |                     | <b>Seismic Certification Limits:</b>       |             | $S_{DS} = 2.0 \quad z/h = 1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0 \quad I_P = 1.5$ |                |
| Component Type                              | Manufacturer        | Model                                      | Description | Notes                                                                            | UUT            |
| Circuit Breaker                             | Cutler Hammer (EGE) | EGE3080FFG                                 | 3P, 80A     |                                                                                  | interp.        |
|                                             |                     | EGE3100FFG                                 | 3P, 100A    |                                                                                  | 4              |
|                                             | ABB                 | TS3N060TW-2                                | 2P, 60A     |                                                                                  | 1              |
|                                             |                     | TS3N090TW-2                                | 2P, 90A     |                                                                                  | 3              |
|                                             |                     | TS3N100TW-2                                | 2P, 100A    |                                                                                  | 5              |
|                                             |                     | TS3N125TW-2                                | 2P, 125A    |                                                                                  | interp.        |
|                                             |                     | TS3N150TW-2                                | 2P, 150A    |                                                                                  | 2              |
|                                             |                     | T3N200TW                                   | 2P, 200A    |                                                                                  | 4              |
|                                             |                     | S201-C20                                   | 1P, 20A     |                                                                                  | 2              |
|                                             |                     | S203-D20                                   | 3P, 20A     |                                                                                  | interp.        |
|                                             |                     | S203-B20                                   | 3P, 20A     |                                                                                  | interp.        |
|                                             |                     | T2S015TW                                   | 3P, 15A     |                                                                                  | interp.        |
|                                             |                     | T2S025TW                                   | 3P, 25A     |                                                                                  | interp.        |
|                                             |                     | T2S030TW                                   | 3P, 30A     |                                                                                  | interp.        |
|                                             |                     | T2S040TW                                   | 3P, 40A     |                                                                                  | interp.        |
|                                             |                     | T2S050TW                                   | 3P, 50A     |                                                                                  | interp.        |
|                                             |                     | T2S060TW                                   | 3P, 60A     |                                                                                  | interp.        |
|                                             |                     | T2S070TW                                   | 3P, 70A     |                                                                                  | interp.        |
|                                             |                     | T2S080TW                                   | 3P, 80A     |                                                                                  | interp.        |
|                                             |                     | T2S090TW                                   | 3P, 90A     |                                                                                  | 4              |
|                                             |                     |                                            |             |                                                                                  |                |
|                                             |                     |                                            |             |                                                                                  |                |
|                                             |                     |                                            |             |                                                                                  |                |

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15052



| <b>Manufacturer:</b> Crucial Power Products |                   | <b>Table Description:</b> Miscellaneous |                                                              |                                                                                 | <b>TABLE 6</b> |
|---------------------------------------------|-------------------|-----------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                   |                                         |                                                              |                                                                                 |                |
| <b>Building Code:</b> CBC 2016              |                   | <b>Seismic Certification Limits:</b>    |                                                              | $S_{DS} = 2.0 \quad z/h = 1.0$<br>$S_{DS} = 3.0 \quad z/h = 0.0$<br>$I_P = 1.5$ |                |
| Component Type                              | Manufacturer      | Model                                   | Description                                                  | Notes                                                                           | UUT            |
| PCBD                                        | OnLine Power Inc. | 1625-287-01                             | 1PH, 3-5kW, 10kW & 3PH, 10kW-15kW (24 Ω Resistor)            |                                                                                 | 1              |
|                                             |                   | 1625-287-02                             | 1PH, 7.5, 12.5, 15, 17kW & 3PH, 20 kVA-25kVA (14 Ω Resistor) |                                                                                 | 2              |
|                                             |                   | 1625-287-03                             | 3PH, 40kVA (6.8 Ω, 1/2w Resistor), 150A CT                   |                                                                                 | 3              |
|                                             |                   | 1625-287-05                             | 3PH, 20kVA                                                   | Identical to '-287-03 (software)                                                | interp.        |
|                                             |                   | 1625-287-XX                             | Base Board (1, 3 Phase Power Board)                          |                                                                                 | 1, 2, 3        |
|                                             |                   | 1625-288-05                             | 1PH, 3-10kW                                                  | Identical to '-288-07 (software)                                                | interp.        |
|                                             |                   | 1625-288-07                             | 1PH, 12.5kW, 17kW                                            |                                                                                 | 2              |
|                                             |                   | 1625-288-XX                             | Base Board (Standard Control Board)                          |                                                                                 | 1, 2           |
|                                             |                   | 1625-291-01                             | 1PH & 3PH, SCR Driver PDBD                                   |                                                                                 | 4              |
|                                             |                   | 1625-291-XX                             | Base Board (SCR Drive Board)                                 |                                                                                 | 1              |
|                                             |                   | 1625-296-05                             | 3PH, Control PCBD, 10-15kVA with LCD                         |                                                                                 | 3              |
|                                             |                   | 1625-296-06                             | 3PH, Control PCBD, 20-30kVA with LCD                         | Identical to '-296-05 (software)                                                | interp.        |
|                                             |                   | 1625-296-07                             | 3PH, Control PCBD, 50kVA/50kW with LCD                       | Identical to '-296-05 (software)                                                | interp.        |
|                                             |                   | 1625-296-08                             | 3PH, Control PCBD, 40kVA with LCD                            | Identical to '-296-05 (software)                                                | interp.        |
|                                             |                   | 1625-296-XX                             | Base Board (3 Phase Control Board)                           |                                                                                 | 3              |
|                                             |                   | 1625-298-01                             | 3PH, 50kVA & 50 kW, 150A CT                                  |                                                                                 | 4              |
|                                             |                   | 1625-298-XX                             | Base Board (3 Phase Power Board)                             |                                                                                 | 4              |
|                                             |                   | 1625-305-XX                             | 3PH, DC to DC converter, 50kVA/50kW                          |                                                                                 | 4              |
|                                             |                   | 1625-343-XX                             | 1PH & 3PH, Alarm, Dirstribution PCBD                         |                                                                                 | 1              |
|                                             |                   | 1625-344-XX                             | 1PH Control PCBD (Event Logging)                             |                                                                                 | 1              |
|                                             |                   | 1625-355-XX                             | 3PH, Control PCBD (Event Logging)                            |                                                                                 | 4              |

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

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| <b>Manufacturer:</b> Crucial Power Products |                                     | <b>Table Description:</b> Miscellaneous |                                         |                            | <b>TABLE 6</b> |
|---------------------------------------------|-------------------------------------|-----------------------------------------|-----------------------------------------|----------------------------|----------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                                     |                                         |                                         |                            |                |
| <b>Building Code: CBC 2016</b>              |                                     | <b>Seismic Certification Limits:</b>    | $S_{DS} = 2.0$<br>$S_{DS} = 3.0$        | $z/h = 1.0$<br>$z/h = 0.0$ | $I_p = 1.5$    |
| Component Type                              | Manufacturer                        | Model                                   | Description                             | Notes                      | UUT            |
| PCBD                                        | OnLine Power Inc.                   | 1625-362-XX                             | 3PH, Netagent Interface (Network Mgmt)  |                            | 4              |
|                                             |                                     | 1625-367-XX                             | 3PH, Metering Interface PCBD            |                            | 4              |
|                                             |                                     | 1625-405-XX                             | 1PH & 3PH, Slow Transfer PCBD           |                            | 1              |
|                                             |                                     | 1625-406-XX                             | 3PH, Output Overload Sensing PCBD       |                            | 1              |
|                                             |                                     | 1625-407-XX                             | 1PH & 3PH, Fast Transfer Processor PCBD |                            | 1              |
|                                             |                                     | 1625-461-XX                             | 1PH & 3PH, Alarm Relay PCBD             |                            | 2              |
|                                             |                                     | 1625-352-XX                             | 1 PH, Audio Alarm PCBD                  |                            | 1              |
| Current Sensor                              | LEM                                 | LA100-P                                 | 100A                                    |                            | 3, 4           |
| Switch                                      | Control Switches International Inc. | N63-US10726-05                          | 3P, 55A, 600V                           |                            | 3              |
|                                             |                                     | 3N125US10726-03                         | 3P, 125A, 600V                          |                            |                |
|                                             |                                     | A200US10726-02                          | 3P, 175A, 600V                          |                            | 4              |
| Rectifier Diode                             | Int. Rectifier                      | IRKD91/14                               | 91A                                     |                            | 3, 4           |
|                                             | Semikron                            | SKKD 100/16 G6                          | 91A                                     |                            | 3, 4           |
|                                             | Powerex                             | CD411699B                               | 91A, 1800V                              |                            | 3, 4           |
|                                             |                                     | CD411699C                               |                                         |                            | 3, 4           |
| Diode Bridge                                | Multicom                            | MCCM3508-RH                             | 35A, 800VDC                             |                            | 3, 4           |
|                                             | Collmer Semiconductor               | KBPC35-04                               | 35AMP, 400VDC                           |                            | 1, 2           |
|                                             | General Semiconductor               | GBPC35-04                               | 35AMP, 400VDC                           |                            | 1, 2           |
| SCR                                         | Semikron                            | SKKT 92/12E                             | 95A                                     |                            | 3              |
|                                             |                                     | SKKT 132/12E                            | 132A                                    |                            | 4              |
| LCD Display                                 | OPTREX                              | C-51847NFJ-SLW-AEN                      | 4.5-5.5V, 98.5mm x 61mm x 15.6mm        |                            | 3              |

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

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| <b>Manufacturer:</b> Crucial Power Products |                     | <b>Table Description:</b> Miscellaneous |                                                          |             | <b>TABLE 6</b>      |
|---------------------------------------------|---------------------|-----------------------------------------|----------------------------------------------------------|-------------|---------------------|
| <b>Model Line:</b> Wave Rider 1 & 3         |                     |                                         |                                                          |             |                     |
| <b>Building Code:</b> CBC 2016              |                     | <b>Seismic Certification Limits:</b>    | $S_{DS} = 2.0$ $z/h = 1.0$<br>$S_{DS} = 3.0$ $z/h = 0.0$ | $I_p = 1.5$ |                     |
| Component Type                              | Manufacturer        | Model                                   | Description                                              | Notes       | UUT                 |
| LCD Display                                 | Panasonic           | AIG05GQ02D                              | 24VDC, 3.6W, 73mm x 38.4mm                               |             | 4                   |
| Inductor                                    | OnLine Power Inc.   | 1450-1470-01                            | 55A, 200uH, 120-277VAC                                   |             | 3                   |
|                                             |                     | 1450-1470-02                            | 75A, 200uH, 120-277VAC                                   |             | interp.             |
|                                             |                     | 1450-1470-03                            | 90A, 200uH, 120-277VAC                                   |             | 2                   |
|                                             |                     | 1450-1470-04                            | 125A, 200uH, 120-277VAC                                  |             | interp.             |
|                                             |                     | 1450-1472-01                            | 55A, 500uH, 80-240VDC                                    |             | interp.             |
|                                             |                     | 1450-1472-02                            | 75A, 350uH, 80-240VDC                                    |             | 3                   |
|                                             |                     | 1450-1472-03                            | 90A, 350uH, 80-240VDC                                    |             | 2                   |
|                                             |                     | 1450-1522                               | 125A, 500uH, 12-15Hz, 125A                               |             | 4                   |
|                                             |                     | Capacitor                               | FJ Enterprise                                            | 606R330A4T  | 60mFD, 330VAC, 60Hz |
| 406R660A4T                                  | 40mFD, 600VAC, 60Hz |                                         |                                                          |             | 4                   |
| 156R370A4T                                  | 15mFD, 370VAC, 60Hz |                                         |                                                          |             | 3, 4                |
| Terminal Block                              | Mersen              | MPDB63153                               | 600V, 175A                                               |             | 3                   |
|                                             |                     | MPDB63193                               | 600V, 135A                                               |             | interp.             |
|                                             |                     | MPDB63150                               | 600V, 135A                                               |             | interp.             |
|                                             |                     | MPDB67003                               | 600V, 310A                                               |             | interp.             |
|                                             |                     | MPDB67000                               | 600V, 310A                                               |             | interp.             |
|                                             |                     | MPDB67023                               | 600V, 350A                                               |             | 3                   |
|                                             |                     | MPDB67423                               | 600V, 310A                                               |             | 4                   |
|                                             | Weidmuller          | WDU35                                   | 690V, 109A                                               |             | 1                   |
|                                             |                     | WPE35                                   | Ground, 12-2 AWG                                         |             | 1                   |
| IGBT                                        | Fuji                | 2MBI150TA-060                           | 150A, 600V                                               |             | 1                   |
|                                             |                     | 2MBI200TE-060                           | 200A, 600V                                               |             | 3                   |

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# UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15052



|                       |                        |              |
|-----------------------|------------------------|--------------|
| <b>Manufacturer:</b>  | Crucial Power Products | <b>UUT 1</b> |
| <b>Model Line:</b>    | Wave Rider 1 & 3       |              |
| <b>Model Number:</b>  | SV-PW8.0A0100T1        |              |
| <b>Serial Number:</b> |                        | N/A          |

**Product Construction Summary:**  
**Base & Top:** 12 GA. carbon steel, **Back & Sides:** 14 GA. carbon steel, **Doors:** 16 GA. carbon steel.  
 Cabinet type A.

**Options/Subcomponent Summary:**  
**Lead Acid batteries:** 12V 95 Ah; 12V 330W **Breakers:** Cutler Hammer: (ED) 125 & 200A; (QC) 30, 50, & 100A; (GHC) 15 & 25A| ABB: TS 60A

| UUT Properties                             |                |               |        |                               |           |                |                    |                    |                    |                    |
|--------------------------------------------|----------------|---------------|--------|-------------------------------|-----------|----------------|--------------------|--------------------|--------------------|--------------------|
| Weight (lb)                                | Dimension (in) |               |        | Lowest Natural Frequency (Hz) |           |                |                    |                    |                    |                    |
|                                            | Depth          | Width         | Height | Front-Back                    | Side-Side | Vertical       |                    |                    |                    |                    |
| 1795                                       | 18             | 39            | 68     | 17.3                          | 12.7      | 19.1           |                    |                    |                    |                    |
| UUT Highest Passed Seismic Run Information |                |               |        |                               |           |                |                    |                    |                    |                    |
| Building Code                              |                | Test Criteria |        | S <sub>DS</sub>               | z/h       | I <sub>P</sub> | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |
| CBC 2016                                   |                | ICC-ES AC156  |        | 2.0                           | 1.0       | 1.5            | 3.20               | 2.40               | 2.0                | 0.8                |
|                                            |                |               |        | 3.0                           | 0.0       | 1.5            |                    |                    |                    |                    |

**Test Mounting Details:**



The UUT was rigid base mounted to the table using (6) 5/8" Grade 8 bolts.  
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.  
 Contents were included in testing per operating conditions.

# UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15052



|                       |                        |              |
|-----------------------|------------------------|--------------|
| <b>Manufacturer:</b>  | Crucial Power Products | <b>UUT 2</b> |
| <b>Model Line:</b>    | Wave Rider 1 & 3       |              |
| <b>Model Number:</b>  | SV-PW017R1100T1        |              |
| <b>Serial Number:</b> |                        | N/A          |

**Product Construction Summary:**  
**Base & Top:** 12 GA. carbon steel, **Back & Sides:** 14 GA. carbon steel, **Doors:** 16 GA. carbon steel.  
 Cabinet type B

**Options/Subcomponent Summary:**  
**Lead Acid batteries:** 12V, 285-270WPC; 12V, 106 Ah **Transformers:** 200VA, Cu windings, 120-277V in, 120V out; 20kVA, Cu windings, 208-277V in, 208-277V out; 20kVA, Cu windings, 480V in, 240/277V out **Breakers:** Cutler Hammer: (GHC) 100A| ABB: 125 & 200A

| UUT Properties                             |                |               |        |                               |           |                |                    |                    |                    |                    |
|--------------------------------------------|----------------|---------------|--------|-------------------------------|-----------|----------------|--------------------|--------------------|--------------------|--------------------|
| Weight (lb)                                | Dimension (in) |               |        | Lowest Natural Frequency (Hz) |           |                |                    |                    |                    |                    |
|                                            | Depth          | Width         | Height | Front-Back                    | Side-Side | Vertical       |                    |                    |                    |                    |
| 4512                                       | 30.5           | 51            | 70     | 9.5                           | 12        | 22             |                    |                    |                    |                    |
| UUT Highest Passed Seismic Run Information |                |               |        |                               |           |                |                    |                    |                    |                    |
| Building Code                              |                | Test Criteria |        | S <sub>DS</sub>               | z/h       | I <sub>P</sub> | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |
| CBC 2016                                   |                | ICC-ES AC156  |        | 2.0                           | 1.0       | 1.5            | 3.20               | 2.40               | 2.0                | 0.8                |
|                                            |                |               |        | 3.0                           | 0.0       | 1.5            |                    |                    |                    |                    |

**Test Mounting Details:**



The UUT was rigid base mounted to the table using (12) 5/8" Grade 8 bolts.  
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.  
 Contents were included in testing per operating conditions.



# UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15052



|                       |                        |              |
|-----------------------|------------------------|--------------|
| <b>Manufacturer:</b>  | Crucial Power Products | <b>UUT 3</b> |
| <b>Model Line:</b>    | Wave Rider 1 & 3       |              |
| <b>Model Number:</b>  | SV-PW010B05LHT3-VA     |              |
| <b>Serial Number:</b> |                        | N/A          |

**Product Construction Summary:**  
**Base & Top:** 12 GA. carbon steel, **Back & Sides:** 14 GA. carbon steel, **Doors:** 16 GA. carbon steel.

**Options/Subcomponent Summary:**  
**Transformers:** 130VA, Cu windings, 208-480V in, 120V out; 15kVA, Cu windings, 158V in, 120V out; 23kVA, Cu windings, 120V in, 127-220V out **Breakers:** Cutler Hammer: (QC) 35 & 100A; (GHC) 40 & 100A| ABB: 90A

| UUT Properties                             |                |               |        |                               |           |                |                    |                    |                    |                    |
|--------------------------------------------|----------------|---------------|--------|-------------------------------|-----------|----------------|--------------------|--------------------|--------------------|--------------------|
| Weight (lb)                                | Dimension (in) |               |        | Lowest Natural Frequency (Hz) |           |                |                    |                    |                    |                    |
|                                            | Depth          | Width         | Height | Front-Back                    | Side-Side | Vertical       |                    |                    |                    |                    |
| 1083                                       | 18             | 39            | 68     | 23.1                          | 12.4      | 20             |                    |                    |                    |                    |
| UUT Highest Passed Seismic Run Information |                |               |        |                               |           |                |                    |                    |                    |                    |
| Building Code                              |                | Test Criteria |        | S <sub>DS</sub>               | z/h       | I <sub>P</sub> | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |
| CBC 2016                                   |                | ICC-ES AC156  |        | 2.0                           | 1.0       | 1.5            | 3.20               | 2.40               | 2.0                | 0.8                |
|                                            |                |               |        | 3.0                           | 0.0       | 1.5            |                    |                    |                    |                    |

**Test Mounting Details:**



The UUT was rigid base mounted to the table using (6) 5/8" Grade 8 bolts.  
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.  
 Contents were included in testing per operating conditions.

# UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15052



|                       |                        |              |
|-----------------------|------------------------|--------------|
| <b>Manufacturer:</b>  | Crucial Power Products | <b>UUT 4</b> |
| <b>Model Line:</b>    | Wave Rider 1 & 3       |              |
| <b>Model Number:</b>  | SV-PW050H09LHT3-KW     |              |
| <b>Serial Number:</b> |                        | N/A          |

**Product Construction Summary:**  
**Base & Top:** 12 GA. carbon steel, **Back & Sides:** 14 GA. carbon steel, **Doors:** 16 GA. carbon steel.

**Options/Subcomponent Summary:**  
**Transformers:** 70kVA, Cu windings, 277V in, 307-532V out; 70kVA, Cu windings, 396V in, 277V out; **Breakers:** Cutler Hammer: (ED) 175A; (GHC) 80A; (EGE) 20 & 100A| ABB: 90 & 200A

| UUT Properties                             |                |               |        |                               |           |                |                    |                    |                    |                    |
|--------------------------------------------|----------------|---------------|--------|-------------------------------|-----------|----------------|--------------------|--------------------|--------------------|--------------------|
| Weight (lb)                                | Dimension (in) |               |        | Lowest Natural Frequency (Hz) |           |                |                    |                    |                    |                    |
|                                            | Depth          | Width         | Height | Front-Back                    | Side-Side | Vertical       |                    |                    |                    |                    |
| 2565                                       | 18             | 39            | 68     | 20.3                          | 11.2      | 21.5           |                    |                    |                    |                    |
| UUT Highest Passed Seismic Run Information |                |               |        |                               |           |                |                    |                    |                    |                    |
| Building Code                              |                | Test Criteria |        | S <sub>DS</sub>               | z/h       | I <sub>p</sub> | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |
| CBC 2016                                   |                | ICC-ES AC156  |        | 2.0                           | 1.0       | 1.5            | 3.20               | 2.40               | 2.0                | 0.8                |
|                                            |                |               |        | 3.0                           | 0.0       | 1.5            |                    |                    |                    |                    |

**Test Mounting Details:**



The UUT was rigid base mounted to the table using (6) 5/8" Grade 8 bolts.  
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.  
 Contents were included in testing per operating conditions.

# UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15052



|                      |                         |                           |
|----------------------|-------------------------|---------------------------|
| <b>Manufacturer:</b> | Crucial Power Products  | <b>UUT 5</b>              |
| <b>Model Line:</b>   | Wave Rider 1 & 3        |                           |
| <b>Model Number:</b> | 51 Inch Battery Cabinet |                           |
|                      |                         | <b>Serial Number:</b> N/A |

**Product Construction Summary:**  
**Base & Top:** 12 GA. carbon steel, **Back & Sides:** 14 GA. carbon steel, **Doors:** 16 GA. carbon steel.

**Options/Subcomponent Summary:**  
**Lead Acid batteries:** 12V, 550-521WPC; 12V, 100Ah; 12V, 175Ah; 12V, 750 WPC; 12V, 540W **Breakers:** ABB: 100A

| UUT Properties                             |                |               |                 |                               |                |                    |                    |                    |                    |
|--------------------------------------------|----------------|---------------|-----------------|-------------------------------|----------------|--------------------|--------------------|--------------------|--------------------|
| Weight (lb)                                | Dimension (in) |               |                 | Lowest Natural Frequency (Hz) |                |                    |                    |                    |                    |
|                                            | Depth          | Width         | Height          | Front-Back                    | Side-Side      | Vertical           |                    |                    |                    |
| 4320                                       | 30.5           | 51            | 70              | 9.4                           | 8.5            | 8.9                |                    |                    |                    |
| UUT Highest Passed Seismic Run Information |                |               |                 |                               |                |                    |                    |                    |                    |
| Building Code                              |                | Test Criteria | S <sub>DS</sub> | z/h                           | I <sub>p</sub> | A <sub>FLX-H</sub> | A <sub>RIG-H</sub> | A <sub>FLX-V</sub> | A <sub>RIG-V</sub> |
| CBC 2016                                   |                | ICC-ES AC156  | 2.0             | 1.0                           | 1.5            | 3.20               | 2.40               | 2.0                | 0.8                |
|                                            |                |               | 3.0             | 0.0                           | 1.5            |                    |                    |                    |                    |

**Test Mounting Details:**



The UUT was rigid base mounted to the table using (12) 5/8" Grade 8 bolts.  
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.  
 Contents were included in testing per operating conditions.