



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

**APPLICATION FOR OSHPD SPECIAL SEISMIC  
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

**APPLICATION #: OSP-0024**

**OSHPD Special Seismic Certification Preapproval (OSP)**

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: Russelectric, Inc.

Manufacturer's Technical Representative: Elizabeth Stark

Mailing Address: 99 Industrial Park Rd., South Shore Park, Hingham, MA 020434387

Telephone: (781) 749-6000 Email: estark@russelectric.com

**Product Information**

Product Name: Switchgear/Switchboards

Product Type: Switchgear - Low Voltage

Product Model Number: See Certified Product List Table 1

General Description: Russelectric low and medium voltage switchgear provides low and medium voltage circuit protection.

Mounting Description: Rigid, Floor Mounted

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

**Applicant Information**

Applicant Company Name: W.E. Gundy & Associates, Inc.

Contact Person: Travis Soppe

Mailing Address: 1199 Shoreline Drive, Suite 310, Boise, ID 83702

Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Title: President





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

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

Company Name: W.E. GUNDY & ASSOCIATES INC.  
Name: Travis Soppe California License Number: S6115  
Mailing Address: P.O. Box 9121, Boise, ID 83707  
Telephone: (208) 342-5989 Email: tsoppe@wegai.com

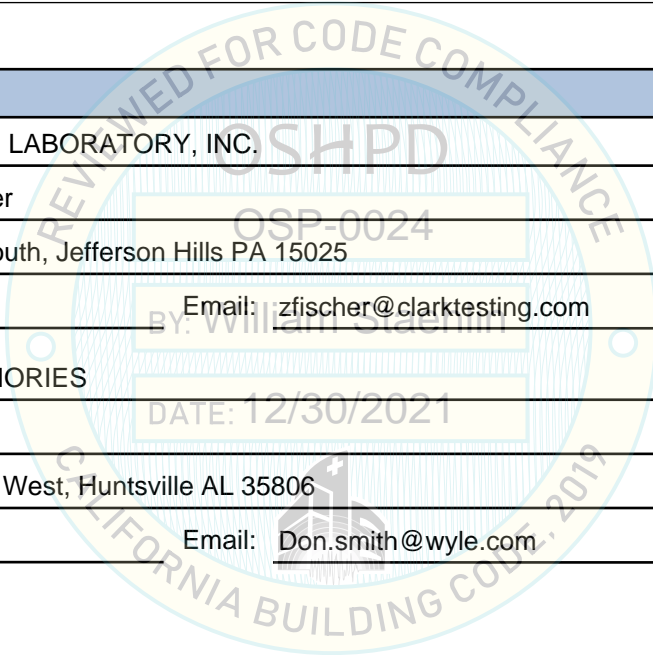
**Certification Method**

GR-63-Core       ICC-ES AC156       IEEE 344       IEEE 693       NEBS 3  
 Other (Please Specify): \_\_\_\_\_

**Testing Laboratory**

Company Name: CLARK TESTING LABORATORY, INC.  
Contact Person: Zachary E. Fischer  
Mailing Address: 1801 Route 51 South, Jefferson Hills PA 15025  
Telephone: (412) 387-1676 Email: zfischer@clarktesting.com

Company Name: WYLE LABORATORIES  
Contact Person: Don Smith  
Mailing Address: 7800 Highway 20 West, Huntsville AL 35806  
Telephone: (256) 837-4411 Email: Don.smith@wyle.com





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
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**Seismic Parameters**

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 1.5 (LV), 1.34 (MV), 0.86 (MV – NEMA 3R)

SDS (Design spectral response acceleration at short period, g) = 2.00 (LV), 1.78 (MV), 1.15 (MV – NEMA 3R)

$a_p$  (Amplification factor) = 2.5

$R_p$  (Response modification factor) = 6.0

$\Omega_0$  (System overstrength factor) = 2.0

$I_p$  (Importance factor) = 1.5

$z/h$  (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

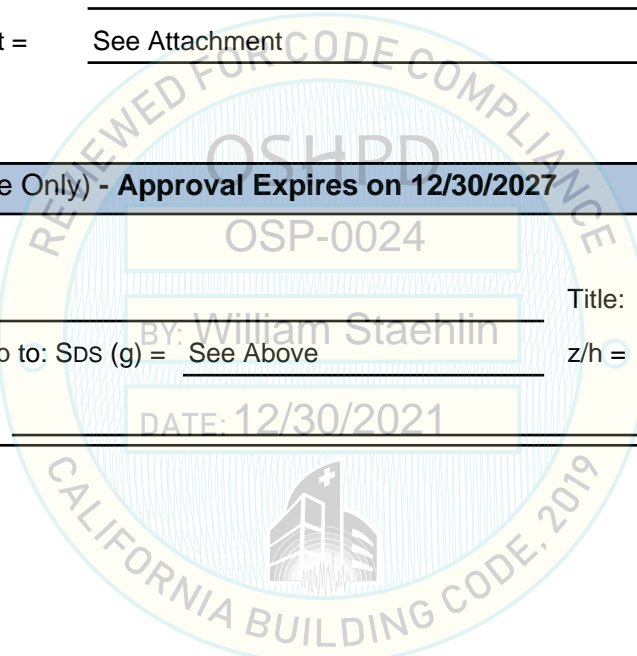
**OSHPD Approval (For Office Use Only) - Approval Expires on 12/30/2027**

Date: 12/30/2021

Name: William Staehlin Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = 1

Condition of Approval (if applicable): DATE: 12/30/2021



# RUSSELECTRIC INC. LOW VOLTAGE SWITCHGEAR CERTIFIED PRODUCT LINE MATRIX



Identification <sup>2)</sup>	Cubicle Arrangement	NEMA	Width (in)	Depth (in)	Height (in)	Max CG (in)	Weight (lbs)	Representative UUT <sup>1)</sup>
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**Table 1: Low Voltage Switchgear Product Line -  $S_{DS} = 2.0$  at  $z/h = 1.0$**

LVSG-C	Electrical and Controls	1	26-36	28	90-98	54	950-1400	Interpolated
<b>LVSG-C</b>	<b>Electrical and Controls</b>	<b>1</b>	<b>26</b>	<b>28</b>	<b>90</b>	<b>54</b>	<b>1100</b>	<b>UUT<sub>w</sub>-2b</b>
<b>LVSG-C</b>	<b>Electrical and Controls</b>	<b>1</b>	<b>30</b>	<b>28</b>	<b>90</b>	<b>54</b>	<b>950</b>	<b>UUT<sub>w</sub>-2a</b>
<b>LVSG-C</b>	<b>Electrical and Controls</b>	<b>1</b>	<b>30</b>	<b>72</b>	<b>90</b>	<b>60</b>	<b>1500</b>	<b>UUT<sub>w</sub>-1b</b>
LVSG-C	Electrical and Controls	1	24-42	72-78	90-98	60	1100-1700	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	24-48	72-78	90-98	57	1500	Interpolated
<b>LVSG-1H</b>	<b>(1) 800A Breaker</b>	<b>1</b>	<b>26</b>	<b>78</b>	<b>98</b>	<b>46</b>	<b>1650</b>	<b>UUT<sub>x</sub>-2b</b>
LVSG-2H	(2) 800A to 5000A Breakers	1	24-36	72-78	90-98	57	1700	Interpolated
<b>LVSG-2H</b>	<b>(1) 800A, (1) 3200A Breakers</b>	<b>1</b>	<b>24</b>	<b>78</b>	<b>98</b>	<b>48</b>	<b>1900</b>	<b>UUT<sub>x</sub>-1a</b>
<b>LVSG-1H</b>	<b>(1) 800A Breaker</b>	<b>1</b>	<b>24</b>	<b>72</b>	<b>92</b>	<b>34</b>	<b>1900</b>	<b>UUT<sub>z</sub>-5b</b>
LVSG-1H	(1) 800A to 5000A Breakers	1	24-28	72-78	90-98	49	2000	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	30-48	72-78	90-98	57	2000	Interpolated
LVSG-2H	(2) 800A to 5000A Breakers	1	24-26	72-78	90-98	49	2000	Interpolated
LVSG-2H	(2) 800A to 5000A Breakers	1	28-36	72-78	90-98	57	2000	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	24-26	72-78	90-98	49	2000	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	28-36	72-78	90-98	57	2000	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	24-28	72-78	90-98	46	2200	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	30-36	72-78	90-98	57	2200	Interpolated
<b>LVSG-4H</b>	<b>(4) 2000A Breakers</b>	<b>1</b>	<b>24</b>	<b>72</b>	<b>90</b>	<b>48</b>	<b>2200</b>	<b>UUT<sub>w</sub>-1a</b>
LVSG-2H	(2) 800A to 5000A Breakers	1	24-26	72-78	90-98	42	2350	Interpolated
LVSG-2H	(2) 800A to 5000A Breakers	1	28-32	72-78	90-98	49	2350	Interpolated
LVSG-2H	(2) 800A to 5000A Breakers	1	34-36	72-78	90-98	57	2350	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	24-28	72-78	90-98	40	2500	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	30-34	72-78	90-98	49	2500	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	36-48	72-78	90-98	57	2500	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	24-26	72-78	90-98	40	2500	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	28-32	72-78	90-98	47	2500	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	34-36	72-78	90-98	56	2500	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	24-26	72-78	90-98	38	2600	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	28-32	72-78	90-98	45	2600	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	34-36	72-78	90-98	54	2600	Interpolated
<b>LVSG-2H</b>	<b>(1) 800A, (1) 3200A Breakers</b>	<b>1</b>	<b>36</b>	<b>78</b>	<b>98</b>	<b>48</b>	<b>2600</b>	<b>UUT<sub>x</sub>-2a</b>

**General Notes:**

All seismically certified configurations consist of a minimum of 2 ganged sections.

All low voltage switchgear are constructed of 12ga, Carbon Steel

<sup>1)</sup> v, w, x, y, and z indicates the test report in which the units were qualified under:

v - JID 20-00927 / w - T53994 / x - T59065 / y - JID 19-00493 / z - JID 19-01389.

<sup>2)</sup> LVSG-C, 1H, 2H, 3H, 4H configuration are identified the figure at the end of the table.

# RUSSELECTRIC INC. LOW VOLTAGE SWITCHGEAR CERTIFIED PRODUCT LINE MATRIX



Identification <sup>2)</sup>	Cubicle Arrangement	NEMA	Width (in)	Depth (in)	Height (in)	Max CG (in)	Weight (lbs)	Representative UUT <sup>1)</sup>
LVSG-2H	(2) 800A to 5000A Breakers	1	24-26	72-78	90-98	37	2700	Interpolated
LVSG-2H	(2) 800A to 5000A Breakers	1	28-32	72-78	90-98	43	2700	Interpolated
LVSG-2H	(2) 800A to 5000A Breakers	1	34-36	72-78	90-98	52	2700	Interpolated
<b>LVSG-1H</b>	<b>(1) 4000A Breaker</b>	<b>1</b>	<b>36</b>	<b>72</b>	<b>90</b>	<b>44</b>	<b>2700</b>	<b>UUT<sub>w</sub>-1c</b>
LVSG-4H	(4) 800A to 2000A Breakers	1	24-26	72-78	90-98	34	2900	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	28-32	72-78	90-98	40	2900	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	34-36	72-78	90-98	48	2900	Interpolated
<b>LVSG-2H</b>	<b>(1) 800A, (1) 4000A Breakers</b>	<b>1</b>	<b>36</b>	<b>72</b>	<b>98</b>	<b>48</b>	<b>3000</b>	<b>UUT<sub>y</sub>-1a</b>
LVSG-1H	(1) 800A to 5000A Breakers	1	24-28	72-78	90-98	33	3000	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	30-34	72-78	90-98	42	3000	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	36-40	72-78	90-98	49	3000	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	42-48	72-78	90-98	57	3000	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	24-26	72-78	90-98	33	3000	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	28-32	72-78	90-98	39	3000	Interpolated
LVSG-3H	(3) 800A to 3200A Breakers	1	34-36	72-78	90-98	47	3000	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	24-28	72-78	90-98	31	3200	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	30-34	72-78	90-98	39	3200	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	36-40	72-78	90-98	46	3200	Interpolated
LVSG-1H	(1) 800A to 5000A Breakers	1	42-48	72-78	90-98	54	3200	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	24-26	72-78	90-98	40	3200	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	28-32	72-78	90-98	44	3200	Interpolated
LVSG-4H	(4) 800A to 2000A Breakers	1	34-36	72-78	90-98	46	3200	Interpolated
<b>LVSG-1H</b>	<b>(1) 5000A Breaker</b>	<b>1</b>	<b>36</b>	<b>78</b>	<b>98</b>	<b>27</b>	<b>3200</b>	<b>UUT<sub>y</sub>-1a</b>
<b>LVSG-1H</b>	<b>(1) 5000A Breaker</b>	<b>1</b>	<b>44</b>	<b>78</b>	<b>98</b>	<b>40</b>	<b>3200</b>	<b>UUT<sub>x</sub>-1b</b>
<b>LVSG-4H</b>	<b>(4) 800 to 2000A Breakers</b>	<b>1</b>	<b>24</b>	<b>72</b>	<b>98</b>	<b>44</b>	<b>3236</b>	<b>UUT<sub>y</sub>-1b</b>
LVSG-1H	(1) 3200A to 5000A Breakers	1	36-40	72-78	90-98	40	3600	Interpolated
LVSG-1H	(1) 3200A to 5000A Breakers	1	42-48	72-78	90-98	46	3600	Interpolated
<b>LVSG-1H</b>	<b>(1) 5000A Breaker</b>	<b>1</b>	<b>36</b>	<b>72</b>	<b>92</b>	<b>34</b>	<b>3600</b>	<b>UUT<sub>z</sub>-5a</b>
LVSG-1H	(1) 3200A to 6000A Breakers	1	42-48	72-78	90-98	42	4000	Interpolated
<b>LVSG-1H</b>	<b>(1) 6000A Breaker</b>	<b>1</b>	<b>42</b>	<b>78</b>	<b>98</b>	<b>39</b>	<b>4000</b>	<b>UUT<sub>v</sub>-1b</b>

**General Notes:**

All seismically certified configurations consist of a minimum of 2 ganged sections.

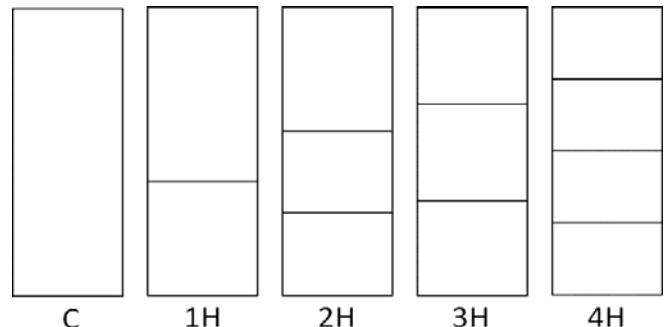
All low voltage switchgear are constructed of 12ga, Carbon Steel

<sup>1)</sup> v, w, x, y, and z indicates the test report for each UUT:

v - JID 20-00927 / w - T53994 / x - T59065

y - JID 19-00493 / z - JID 19-01389

<sup>2)</sup> LVSG-C, 1H, 2H, 3H, 4H configuration are identified in the figure.



**RUSSELECTRIC INC. LOW VOLTAGE SWITCHGEAR  
CERTIFIED SUBCOMPONENT MATRICES**



ID/Catalog Number	Manufacturer <sup>2)</sup>	Description	Weight (lbs)	Representative UUT <sup>1)</sup>	
<b>Table 2: Circuit Breakers &amp; Cradle - S<sub>DS</sub> = 2.0 at z/h = 1.0</b>					
MTZ1-1200	Schneider / Square D	Masterpact MTZ 1200A	90	Extrapolated	
MTZ1-800		Masterpact MTZ 800A	100	Extrapolated	
MTZ2-2000		Masterpact MTZ 2000A	240	Extrapolated	
MTZ2 (H1, H2, H3)-4000		Masterpact MTZ 4000A	250	Extrapolated	
MTZ2-800		Masterpact MTZ 800A	265	Extrapolated	
NW08N1, NW08H1 - H3		Masterpact NW 800A	280	Extrapolated	
MTZ2-3000		Masterpact MTZ 3000A	290	Extrapolated	
MTZ2-1600		Masterpact MTZ 1600A	300	Extrapolated	
NW16N1, NW16H1 - H3		Masterpact NW 1600A	320	Extrapolated	
MTZ2-2500		Masterpact MTZ 2500A	340	Extrapolated	
MTZ2 (L1, L1F)-2000		Masterpact MTZ 2000A	360	Extrapolated	
NW20L1		Masterpact NW 2000A	380	UUT <sub>w</sub> -1a	
NW20H1 - H3 & L1		Masterpact NW 2000A	380	Interpolated	
NW32H1 - H3 & L1		Masterpact NW 3200A	400	Interpolated	
NW40H1 - H3		Masterpact NW 4000A	400	Interpolated	
NW40H3		Masterpact NW 4000A	400	UUT <sub>w</sub> -1c	
MTZ2 (H1, H2, H3)-3200		Masterpact MTZ 3200A	420	Interpolated	
MTZ3 (L1)-3200		Masterpact MTZ 3200A	700	Interpolated	
MTZ3-4000		Masterpact MTZ 4000A	700	Interpolated	
MTZ3-5000		Masterpact MTZ 5000A	700	UUT <sub>v</sub> -1a	
MTZ3-6000		Masterpact MTZ 6000A	920	UUT <sub>v</sub> -1b	
MDS-C08		Eaton / Cutler Hammer	Magnum DS 800A	200	UUT <sub>x</sub> -1a, 2a, 2b
MDS-C16			Magnum DS 1600A	200	Interpolated
MDS-C20	Magnum DS 2000A		220	Interpolated	
MDS-C32	Magnum DS 3200A		260	UUT <sub>x</sub> -1a, 2a	
MDS-C40	Magnum DS 4000A		400	Interpolated	
MDS-C50	Magnum DS 5000A		450	UUT <sub>x</sub> -1b	
N, S, H, L, F2A3xx	Siemens	UL 1066 800A	245	UUT <sub>y</sub> -1a, 1b x2	
N, S, H, L, F2A3xx		UL 1066 800A	245	UUT <sub>z</sub> -5b	
N, S, H, L, F2A3xx		UL 1066 1600A	271	UUT <sub>y</sub> -1b	
S, H, L, F2A3xx		UL 1066 2000A	305	UUT <sub>y</sub> -1b	
S, H, L2A3xx		UL 1066 3200A	361	Interpolated	
M, F3A3xx		UL 1066 3200A	361	Interpolated	
H, L, M, F3A3xx		UL 1066 4000A	531	UUT <sub>y</sub> -1a	
H, L, M, F3A3xx		UL 1066 5000A	566	UUT <sub>z</sub> -5a	

**General Notes:**

<sup>1)</sup> v, w, x, y, and z indicates the test report in which the units were qualified under:  
v - JID-20-00927 / w - T53994 / x - T59065 / y - JID 19-00493 / z - JID 19-01389

<sup>2)</sup> Schneider was formally known as Square D.

**RUSSELECTRIC INC. LOW VOLTAGE SWITCHGEAR  
CERTIFIED SUBCOMPONENT MATRICES**



ID/Catalog Number	Manufacturer <sup>2)</sup>	Description	Weight (lbs)	Representative UUT <sup>1)</sup>
<b>Table 3: Current Transformers - <math>S_{DS} = 2.0</math> at <math>z/h = 1.0</math></b>				
120-202	ITI	C.T., 600V 2000:5	12	UUT <sub>w</sub> -1a, UUT <sub>x</sub> -2b
120-201 to 120-402	ITI	C.T., 600V 200:5 to 4000:5	12	Interpolated
130-201 to 120-402	ITI	C.T., 600V 200:5 to 4000:5	18	Interpolated
140-402	ITI	C.T., 600V 4000:5	22	UUT <sub>w</sub> -1c, UUT <sub>x</sub> -1b
140-500 to 120-602	ITI	C.T., 600V 50:5 to 6000:5	22	Extrapolated
<b>Table 4: Current Transformers - <math>S_{DS} = 2.0</math> at <math>z/h = 1.0</math></b>				
120-202	ITI	C.T., 600V 2000:5	12	UUT <sub>w</sub> -1a, UUT <sub>x</sub> -2b
120-201 to 120-402	ITI	C.T., 600V 200:5 to 4000:5	12	Interpolated
130-201 to 120-402	ITI	C.T., 600V 200:5 to 4000:5	18	Interpolated
140-402	ITI	C.T., 600V 4000:5	22	UUT <sub>w</sub> -1c, UUT <sub>x</sub> -1b
140-500 to 120-602	ITI	C.T., 600V 50:5 to 6000:5	22	Extrapolated
<b>Table 5: Display Lights &amp; Flat Panel Displays - <math>S_{DS} = 2.0</math> at <math>z/h = 1.0</math></b>				
C-TPC1770H	Wonderware	LCD PC 17"	37	UUT <sub>w</sub> -1b, UUT <sub>x</sub> -1b
304-191000	Strongarm	Display Panel 19.1"	43	UUT <sub>w</sub> -2a
<b>Table 6: Transformers - <math>S_{DS} = 2.0</math> at <math>z/h = 1.0</math></b>				
K1000D1	Square D	Transformer 1000VA	21	UUT <sub>w</sub> -1b, UUT <sub>x</sub> -1b
K300D1	Square D	Transformer 300VA	8	UUT <sub>w</sub> -1c, UUT <sub>x</sub> -2b
<b>Table 7: Protective Relays &amp; Other Protection System - <math>S_{DS} = 2.0</math> at <math>z/h = 1.0</math></b>				
SR 489	GE Mutilin	Generator Protection System	17	UUT <sub>w</sub> -1b, UUT <sub>x</sub> -2a
<b>Table 8: Battery - <math>S_{DS} = 2.0</math> at <math>z/h = 1.0</math></b>				
SDU 24-BAT	SOLA		12	UUT <sub>y</sub> -1a, UUT <sub>z</sub> -5b
<b>Table 8: Operator Interface (HMI) - Max <math>S_{DS} = 2.0</math> at <math>z/h = 1.0</math></b>				
HIS-ML23-CTTD	Hope	23" Touch Panel	28	UUT <sub>y</sub> -1b

**General Notes:**

<sup>1)</sup> <sub>v</sub>, <sub>w</sub>, <sub>x</sub>, <sub>y</sub>, and <sub>z</sub> indicates the test report in which the units were qualified under:  
<sub>v</sub> - JID-20-00927 / <sub>w</sub> - T53994 / <sub>x</sub> - T59065 / <sub>y</sub> - JID 19-00493 / <sub>z</sub> - JID 19-01389

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
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<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T53994
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<b>Model Number:</b> LVSG-4H	<b>UUT No. in Test Report:</b> 98007-1
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**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a three-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>w</sub>-1a is a 24inch wide 4-high breaker configuration.

**UUT Components:**  
 NEMA1 12ga Carbon Steel Enclosure, Square D Low Voltage Circuit Breakers & Cradle (NW20L1) and Current Transformers (120-202).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
2,200	24.0	72.0	90.0	7.4	8.7	> 33

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	3.20g	2.40g	1.34g	0.54g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.



UUT<sub>w</sub>-1b

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



**Manufacturer:** Russelectric, Inc. **Test Location:** Wyle Laboratory, Inc.

**Product Line:** Low Voltage Switchgear **Report Number:** T53994

**Model Number:** LSVG-C **UUT No. in Test Report:** 98007-1

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a three-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>w</sub>-1b is a 30inch wide single high control section.

**UUT Components:**  
NEMA1 12ga Carbon Steel Enclosure Flat Panel Displays (C-TPC1770H), Transformers (K100D1), and Protective Relays (SR489).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
1,500	30.0	72.0	90.0	7.4	8.7	> 33

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	3.20g	2.40g	1.34g	0.54g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
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<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T53994
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<b>Model Number:</b> LSVG-1H	<b>UUT No. in Test Report:</b> 98007-1
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**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a three-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>w</sub>-1c is a 36inch wide 1-high breaker configuration.

**UUT Components:**  
NEMA1 12ga Carbon Steel Enclosure, Square D Low Voltage Circuit Breakers & Cradle (NW40H3), Current Transformers (140-402) and Transformer (K300D1).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
2,700	36.0	72.0	90.0	7.4	8.7	> 33

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	3.20g	2.40g	1.34g	0.54g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T53994
<b>Model Number:</b> LSVG-C	<b>UUT No. in Test Report:</b> 98007-2
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple sources.	
<b>UUT Description:</b> The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT <sub>w</sub> -2a is a 30inch wide single high control section.	
<b>UUT Components:</b> NEMA1 12ga Carbon Steel Enclosure, Flat Panel Displays (304-191000) and Controls.	

UUT PROPERTIES							
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)			
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V	
950	30.0	28.0	90.0	7.3	7.4	> 33	
SEISMIC TEST PARAMETERS							
Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	3.20g	2.40g	1.34g	0.54g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T53994
<b>Model Number:</b> LSVG-C	<b>UUT No. in Test Report:</b> 98007-2
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple sources.	
<b>UUT Description:</b> The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT <sub>w</sub> -2b is a 26inch wide single high control section.	
<b>UUT Components:</b> NEMA1 12ga Carbon Steel Enclosure with Controls.	

UUT PROPERTIES							
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)			
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V	
1,100	26.0	28.0	90.0	7.3	7.4	> 33	
SEISMIC TEST PARAMETERS							
Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	3.20g	2.40g	1.34g	0.54g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
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<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T59065
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<b>Model Number:</b> LSVG-2H	<b>UUT No. in Test Report:</b> UUT-1
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**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>x</sub>-1a is a 24inch wide 2-high breaker configuration.

**UUT Components:**  
NEMA1 12ga Carbon Steel Enclosure, Eaton Low Voltage Circuit Breakers & Cradel (MDS-C08, MDS-C32).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
1,900	24.0	78.0	98.0	11.5	8	31.5

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	4.00g	3.00g	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T59065
<b>Model Number:</b> LSVG-1H	<b>UUT No. in Test Report:</b> UUT-1

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>x</sub>-1b is a 44inch wide 1-high breaker configuration.

**UUT Components:**  
NEMA1 12ga Carbon Steel Enclosure, Eaton Low Voltage Circuit Breaker & Cradel (MDS-C50), Current Transformer (140-402), Flat Panel Displays (C-TPC1770H), and Transformers (K1000D1).

<b>UUT PROPERTIES</b>						
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,200	44.0	78.0	98.0	11.5	8	31.5

<b>SEISMIC TEST PARAMETERS</b>							
Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	4.00g	3.00g	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>x</sub>-2a

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



REVIEWED FOR CODE COMPLIANCE  
OSHPD  
OSP-0024  
BY: William Staehlin  
DATE: 12/30/2021

<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T59065
<b>Model Number:</b> LSVG-3H	<b>UUT No. in Test Report:</b> UUT-2
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple sources.	
<b>UUT Description:</b> The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT <sub>x</sub> -2a is a 36inch wide 3-high breaker configuration.	
<b>UUT Components:</b> NEMA1 12ga Carbon Steel Enclosure, Eaton Low Voltage Circuit Breakers & Cradel (MDS-C08, MDS-C32) and Protective Relays (SR489).	

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
2,600	36.0	78.0	98.0	9.8	8.8	32.2

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	4.00g	3.00g	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> T59065
<b>Model Number:</b> LSVG-1H	<b>UUT No. in Test Report:</b> UUT-2

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>x</sub>-2b is a 26inch wide 1-high breaker configuration.

**UUT Components:**  
 NEMA1 12ga Carbon Steel Enclosure, Eaton Low Voltage Circuit Breakers & Cradel (MDS-C08), Current Transformers (120-202), and Transformer (K300D1).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
1,650	26.0	78.0	98.0	9.8	8.8	32.2

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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	2.00	1.00	1.50	4.00g	3.00g	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.



UUT<sub>y</sub>-1a

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



**Manufacturer:** Russelectric, Inc. **Test Location:** Clark Laboratories

**Product Line:** Low Voltage Switchgear **Report Number:** JID 19-00493

**Model Number:** LSVG-2H **UUT No. in Test Report:** UUT-1

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>y</sub>-1a is a 36inch wide 2-high breaker configuration.

**UUT Components:**  
NEMA1 12ga Carbon Steel Enclosure, Siemens Low Voltage Circuit Breakers & Cradel (H3A340Z, S2A08N), Feeder Protective Relays (7SJ85), Battery (SDU 24-BAT) and Control Transformer (9070T300D1).

**UUT PROPERTIES**

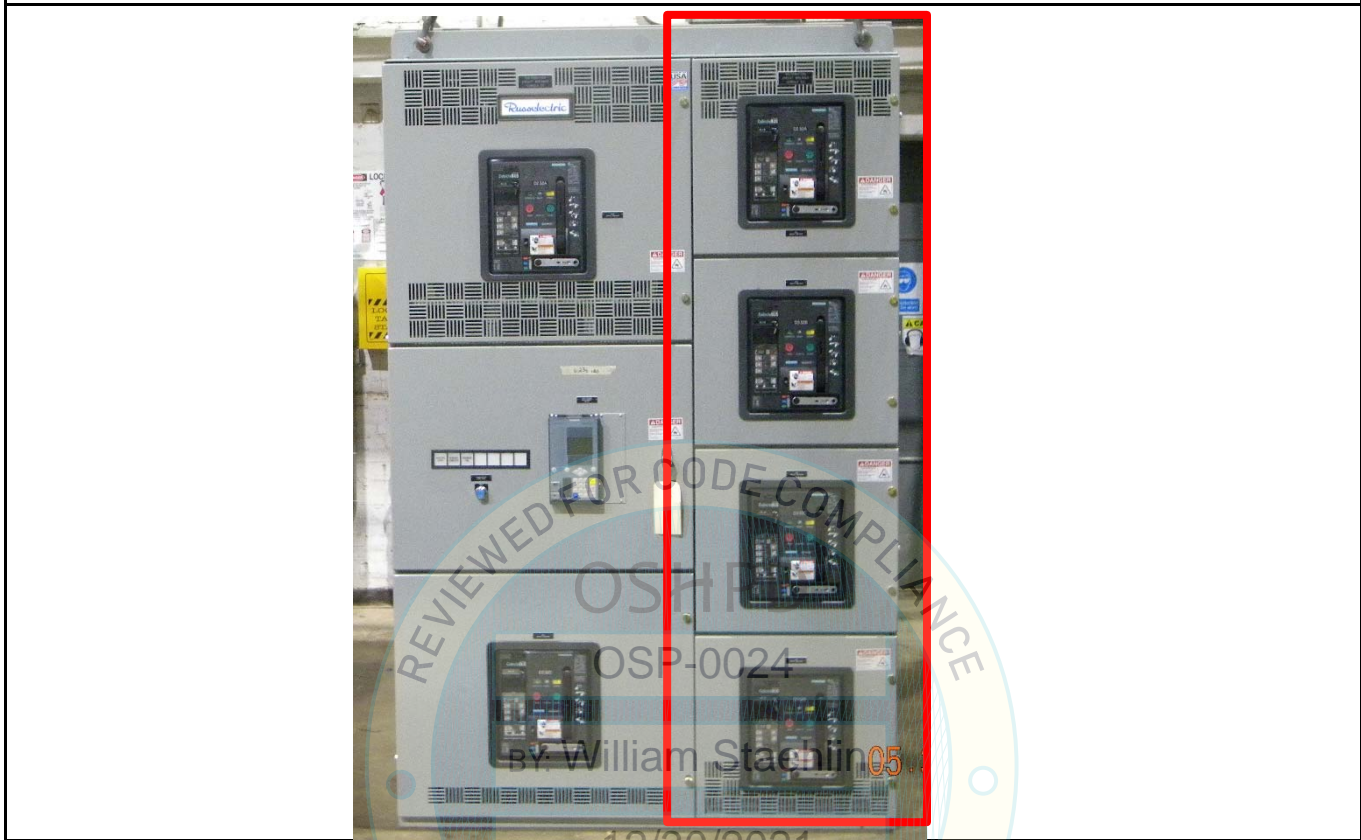
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,000	36.0	72.0	98.0	12.4	7.8	>33

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.2g	2.4g	-	-
	2.50	1.00	1.50	-	-	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (5) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Clark Laboratories
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<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> JID 19-00493
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<b>Model Number:</b> LSVG-4H	<b>UUT No. in Test Report:</b> UUT-1
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**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>y</sub>-1b is a 24inch wide 4-high breaker configuration.

**UUT Components:**  
 NEMA1 12ga Carbon Steel Enclosure with Siemens Low Voltage Circuit Breakers & Cradel (S2A316T, S2A320U, 2x S2A308N).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,236	24.0	72.0	98.0	12.4	7.8	>33

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.2g	2.4g	-	-
	2.50	1.00	1.50	-	-	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>z</sub>-5a

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



**Manufacturer:** Russelectric, Inc. **Test Location:** Clark Laboratories

**Product Line:** Low Voltage Switchgear **Report Number:** JID 19-01389

**Model Number:** LSVG-1H **UUT No. in Test Report:** UUT-5

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>z</sub>-5a is a 36inch wide 1-high breaker configuration.

**UUT Components:**  
NEMA1 12ga Carbon Steel Enclosure, Siemens Low Voltage Circuit Breakers & Cradel (F3A3501), and Circuit Fuse Rollout (52WLC000112).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,600	36.0	72.0	92.0	13.0	8.5	9.9

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.2g	2.4g	-	-
	2.50	1.00	1.50	-	-	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

<b>UUT<sub>z</sub>-5b</b>	<b>UNIT UNDER TEST (UUT) SUMMARY SHEET</b>	 <b>WEGAI</b> <small>W.E. GUNDY &amp; ASSOCIATES, INC.          STRUCTURAL &amp; EARTHQUAKE ENGINEERING</small>
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**Mounting Details:** Floor mounted with (5) 1/2" diameter grade 5 bolts per section.

**Required Modification:** Din rail mounted power supplies required addition of a bracket to pass seismic testing.



<b>Manufacturer:</b> Russelectric, Inc.	<b>DATE:</b> 12/30/2021	<b>Test Location:</b> Clark Laboratories
<b>Product Line:</b> Low Voltage Switchgear		<b>Report Number:</b> JID 19-01389
<b>Model Number:</b> LSVG-1H		<b>UUT No. in Test Report:</b> UUT-5

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>z</sub>-5b is a 24inch wide 1-high breaker configuration.

**UUT Components:**  
 NEMA1 12ga Carbon Steel Enclosure with Siemens Low Voltage Circuit Breakers & Cradel (F2A30AG), Battery (SDU 24-BAT), and Power Supply (SDN 20-24-100C, SDU 20-24).

UUT PROPERTIES						
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
1,898	24.0	72.0	92.0	13.0	8.5	9.9

SEISMIC TEST PARAMETERS							
Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.2g	2.4g	-	-
	2.50	1.00	1.50	-	-	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Clark Laboratories
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<b>Product Line:</b> Low Voltage Switchgear	<b>Report Number:</b> JID 20-00927
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<b>Model Number:</b> LSVG-1H	<b>UUT No. in Test Report:</b> UUT-1
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**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>v</sub>-1a is a 36inch wide 1-high breaker configuration.

**UUT Components:**  
 NEMA1 12ga Carbon Steel Enclosure, Schneider 5000A Low Voltage Circuit Breakers & Cradel (MTZ3).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,200	36.0	78.0	98.0	11.0	15.0	10.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.2g	2.4g	-	-
	2.50	1.00	1.50	-	-	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

<b>UUT<sub>v</sub>-1b</b>	<b>UNIT UNDER TEST (UUT) SUMMARY SHEET</b>	 <b>WEGAI</b> <small>W.E. GUNDY &amp; ASSOCIATES, INC.          STRUCTURAL &amp; EARTHQUAKE ENGINEERING</small>
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**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.

**Required Modification:** Din rail mounted power supply, HMI screen CPU, front and rear doors required modifications to pass seismic testing.



<b>Manufacturer:</b> Russelectric, Inc.	DATE: 12/30/2021	<b>Test Location:</b> Clark Laboratories
<b>Product Line:</b> Low Voltage Switchgear		<b>Report Number:</b> JID 20-00927
<b>Model Number:</b> LSVG-1H		<b>UUT No. in Test Report:</b> UUT-1

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple sources.

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>v</sub>-1b is a 42inch wide 1-high breaker configuration.

**UUT Components:**  
 NEMA1 12ga Carbon Steel Enclosure, Schneider 6000A Low Voltage Circuit Breakers & Cradel (MTZ3), Battery (SDU 24-BAT), and Power Supply (SDN 20-24-100C, SDU 20-24).

UUT PROPERTIES						
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
4,000	42.0	78.0	98.0	11.0	15.0	10.0

SEISMIC TEST PARAMETERS							
Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.2g	2.4g	-	-
	2.50	1.00	1.50	-	-	1.68g	0.68g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

## RUSSELECTRIC INC. MEDIUM VOLTAGE SWITCHGEAR CERTIFIED PRODUCT LINE MATRIX



Identification	Cubicle Arrangement <sup>3)</sup>	NEMA	Width (in)	Depth (in)	Height (in)	Max CG <sup>4)</sup> (in)	Weight (lbs)	Representative UUT <sup>1)</sup>
<b>Table 1: - Medium Voltage Switchgear Product Line - Single Section - S<sub>DS</sub> = 1.78 at z/h = 1.0</b>								
MVSG-C	Electrical and Control	1	36	93	95	40	2350-2900	Interpolated
MVSG-1H	(1) 1200A to 3000A Breaker	1	36	93	95	40	2500-2900	Interpolated
MVSG-2H	(1) 1200A & (1) 1200A/2000A Breaker	1	36	93	95	40	2600-2900	Interpolated
MVSG-2H	(1) 1200A or 2000A Breaker with (2) PTs	1	36	93	95	40	2600-2900	Interpolated
<b>MVSG-2H</b>	<b>(1) 1200A &amp; (1) 2000A Breaker</b>	<b>1</b>	<b>36</b>	<b>93</b>	<b>95</b>	<b>40</b>	<b>2900</b>	<b>UUT<sub>y</sub>-4</b>
<b>Table 2: - Medium Voltage Switchgear Product Line - Ganged Sections - S<sub>DS</sub> = 1.78 at z/h = 1.0</b>								
MVSG-C	Electrical and Control	1	36	93-96	95-102	50	2350	Interpolated
MVSG-1H	(1) 1200A to 3000A Breaker	1	36	93-96	95-102	50	2500	Interpolated
<b>MVSG-C</b>	<b>Electrical and Control</b>	<b>1</b>	<b>36</b>	<b>93</b>	<b>95</b>	<b>45</b>	<b>2550</b>	<b>UUT<sub>y</sub>-3b</b>
MVSG-2H	(1) 1200A & (1) 1200A/2000A Breaker	1	36	93-96	95-102	50	2600	Interpolated
MVSG-2H	(1) 1200A or 2000A Breaker with (2) PTs	1	36	93-96	95-102	50	2600	Interpolated
MVSG-1H	(1) 1200A to 3000A Breaker	1	36	93-96	95-102	48	2750	Interpolated
MVSG-C	Electrical and Control	1	36	93-96	95-102	43	2750	Interpolated
MVSG-2H	(1) 1200A & (1) 1200A/2000A Breaker	1	36	93-96	95-102	47	2800	Interpolated
MVSG-2H	(1) 1200A or 2000A Breaker with (2) PTs	1	36	93-96	95-102	47	2800	Interpolated
<b>MVSG-2H</b>	<b>(1) 1200A &amp; (1) 2000A Breaker</b>	<b>1</b>	<b>36</b>	<b>93</b>	<b>95</b>	<b>40</b>	<b>2900</b>	<b>UUT<sub>y</sub>-3c</b>
MVSG-1H	(1) 1200A to 3000A Breaker	1	36	93-96	95-102	47	3000	Interpolated
<b>MVSG-1H</b>	<b>(1) 3000A Breaker</b>	<b>1</b>	<b>36</b>	<b>93</b>	<b>95</b>	<b>36</b>	<b>3000</b>	<b>UUT<sub>y</sub>-3a</b>
MVSG-2H	(1) 1200A & (1) 1200A/2000A Breaker	1	36	93-96	95-102	47	3000	Interpolated

**General Notes:**

All medium voltage switchgear are constructed of 11ga, Carbon Steel

<sup>1)</sup> x, y and z indicates the test report in which the units were qualified under: x - JID 19-01389, y - T45832 and z - T58426

<sup>2)</sup> NEMA 3R design is an additional enclosure that fully houses a single or double section of the assembled medium voltage switchgear. Therefore the general dimensions and weights listed for the NEMA 3R is only the additional enclosure dimensions and weight. NEMA 3R enclosure has a lower seismic rating than the remaining switchgear arrangements.

## RUSSELECTRIC INC. MEDIUM VOLTAGE SWITCHGEAR CERTIFIED PRODUCT LINE MATRIX



Identification	Cubicle Arrangement <sup>3)</sup>	NEMA	Width (in)	Depth (in)	Height (in)	Max CG <sup>4)</sup> (in)	Weight (lbs)	Representative UUT <sup>1)</sup>
MVSG-2H	(1) 1200A or 2000A Breaker with (2) PTs	1	36	93-96	95-102	47	3000	Interpolated
MVSG-C	Electrical and Control	1	36	93-96	95-102	42	3000	Interpolated
<b>MVSG-2H</b>	<b>(1) 1200A &amp; (1) 3000A Breaker</b>	<b>1</b>	<b>36</b>	<b>96</b>	<b>102</b>	<b>42</b>	<b>3000</b>	<b>UUT<sub>z</sub>-3a</b>
<b>MVSG-C</b>	<b>Electrical and Control</b>	<b>1</b>	<b>36</b>	<b>96</b>	<b>102</b>	<b>48</b>	<b>3000</b>	<b>UUT<sub>z</sub>-3b</b>
MVSG-1H	(1) 1200A to 3000A Breaker	1	36	93-96	95-102	47	3500	Interpolated
MVSG-2H	(1) 1200A & (1) 3000A Breaker	1	36	96	102	47	3500	Interpolated
MVSG-1H	(1) 1200A to 3000A Breaker	1	36	93-96	95-102	44	4000	Interpolated
MVSG-2H	(1) 1200A & (1) 3000A Breaker	1	36	96	102	45	4000	Interpolated
<b>MVSG-1H</b>	<b>(1) 3000A Breaker</b>	<b>1</b>	<b>36</b>	<b>99</b>	<b>95</b>	<b>45</b>	<b>4300</b>	<b>UUT<sub>x</sub>-4b</b>
<b>MVSG-1H</b>	<b>(1) 1200A Breaker</b>	<b>1</b>	<b>36</b>	<b>99</b>	<b>95</b>	<b>43</b>	<b>4491</b>	<b>UUT<sub>x</sub>-4a</b>

<sup>2)</sup> **Table 3: - Medium Voltage NEMA 3R Enclosure - Ganged Sections - S<sub>DS</sub> = 1.15 at z/h = 1.0**

MVSG-3R	Any cubical arrangement listed in Table 1	3R	80	101-104	102-138	48	3600-4870	Interpolated
<b>MVSG-3R</b>	<b>Same cubical arrangements as UUT<sub>z</sub>-3a/b</b>	<b>3R</b>	<b>80</b>	<b>104</b>	<b>138</b>	<b>48</b>	<b>4870</b>	<b>UUT<sub>z</sub>-4a, 4b</b>

**General Notes:**

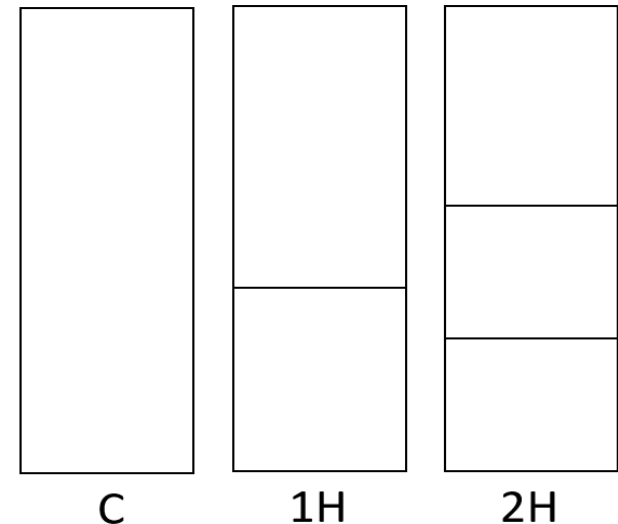
All medium voltage switchgear are constructed of 11ga, Carbon Steel

<sup>1)</sup> x, y and z indicates the test report in which the units were qualified under:

x - JID 19-01389 y - T45832 and z - T58426

<sup>2)</sup> NEMA 3R design is an additional enclosure that fully houses a single or double section of the assembled medium voltage switchgear. Therefore the general dimensions and weights listed for the NEMA 3R is only the additional enclosure dimensions and weight. NEMA 3R enclosure has a lower seismic rating than the remaining switchgear arrangements.

<sup>3)</sup> MVSG-C, 1H, 2H configuration are identified in the adjacent figure.





# RUSSELECTRIC INC. MEDIUM VOLTAGE SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX



ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT <sup>1) 2)</sup>
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**Table 4: Circuit Breakers & Cradle -  $S_{DS} = 1.78$  at  $z/h = 1.0$**

VR-15100-12	Square D	VR Series 5 1200A	600	UUT <sub>y</sub> -3c
VR-05025-12	Square D	VR Series 5 1200A	550	UUT <sub>y</sub> -4
VR-05025-12 : VR-27040-20	Square D	VR Series 5 1200, 2000, 3000A	550-900	Interpolated
VR-15100-20	Square D	VR Series 5 2000A	700	UUT <sub>y</sub> -3c
VR-05025-20	Square D	VR Series 5 2000A	650	UUT <sub>y</sub> -4
VR-15100-30	Square D	VR Series 5 3000A	900	UUT <sub>y</sub> -3a
50VCP-W350 1200A	Eaton / Cutler Hammer	VCP-W 1200A	350	UUT <sub>z</sub> -3a
50VCP-W350 1200-3000A	Eaton / Cutler Hammer	VCP-W 1200-3000A	350-525	Interpolated
75VCP-W500 1200-3000A	Eaton / Cutler Hammer	VCP-W 1200-3000A	375-525	Interpolated
150VCP-W500 1200-3000A	Eaton / Cutler Hammer	VCP-W 1200-3000A	350-525	Interpolated
150VCP-W750 1200-3000A	Eaton / Cutler Hammer	VCP-W 1200-3000A	350-525	Interpolated
150VCP-W1000 1200-3000A	Eaton / Cutler Hammer	VCP-W 1200-3000A	460-550	Interpolated
150VCP-W1500 1200-3000A	Eaton / Cutler Hammer	VCP-W 1200-3000A	525-550	Interpolated
150VCP-W1000 300A	Eaton / Cutler Hammer	VCP-W 3000A	550	UUT <sub>z</sub> -3a
15-GMSG-25-1200	Siemens	25kA, 1200	464	UUT <sub>x</sub> -4a
5-GMSG-40-xxx	Siemens	40kA, 1200, 2000, 3000	440-665	Interpolated
5-GMSG-50-xxx	Siemens	50kA, 1200, 2000, 3000	455-670	Interpolated
15-GMSG-25-xxx	Siemens	25kA, 1200, 2000, 3000	430-640	Interpolated
15-GMSG-40-xxx	Siemens	40kA, 1200, 2000, 3000	445-675	Extrapolated
15-GMSG-50-xxx	Siemens	50kA, 1200, 2000, 3000	460-680	Extrapolated
15-GMSG-25-3000	Siemens	25kA, 3000	659	UUT <sub>x</sub> -4b

**Table 5: Potential Transformers -  $S_{DS} = 1.78$  at  $z/h = 1.0$**

763X121031	GE	P.T., 2400-4800 Volt / 60kV	50	UUT <sub>y</sub> -3b, UUT <sub>z</sub> -3b
763X121001 to 463X121042	GE	P.T., 2400-4800 Volt / 60kV	50	Interpolated
764X120001 to 764X120024	GE	P.T., 4800-7200 Volt / 75kV	110	Interpolated
764X121030 to 765X121061	GE	P.T., 7200-11400 Volt / 110kV	110	Interpolated
765X121050	GE	P.T., 7200-14400 Volt / 110kV	110	UUT <sub>y</sub> -3b, UUT <sub>z</sub> -3b
7525A67G10	ABB	P.T., VIZ-11	69	UUT <sub>x</sub> -4a
7525A68G10	ABB	P.T., VIZ-11	69	UUT <sub>x</sub> -4b

**General Notes:**

<sup>1</sup> <sub>x, y</sub> and <sub>z</sub> indicates the test report in which the units were qualified under: x - JID 19-01389, y - T45832 and z - T58426

<sup>2</sup> UUT<sub>z</sub>-4a,b utilized the same subcomponents as UUT<sub>z</sub>-3a,b which achieved higher seismic level. Therefore the subcomponents are not listed for UUT<sub>z</sub>-4a,b.

**RUSSELECTRIC INC. MEDIUM VOLTAGE SWITCHGEAR  
CERTIFIED SUBCOMPONENT MATRIX**



ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT <sup>1) 2)</sup>
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**Table 6: Display Lights & Flat Panel Displays -  $S_{DS} = 1.78$  at  $z/h = 1.0$**

C-TPC1770H	Wonderware	LCD PC 17"	37	UUT <sub>y</sub> -3b
304-191000	Strongarm	Display Panel 19.1"	43	UUT <sub>y</sub> -2a
HIS-ML19.5-CTTA	Hope Industries	OIP	19	UUT <sub>x</sub> -4a

**Table 7: Protective Relays & Other Protection System -  $S_{DS} = 1.78$  at  $z/h = 1.0$**

SR 489	GE Mutilin	Generator Protection System	17	UUT <sub>y</sub> -3b, 3c
BE1-47N	Baster	Relay	8	UUT <sub>y</sub> -3b, 4, UUT <sub>z</sub> -3a
750P5G5S6H1A	GE Mutilin	Relay	10	UUT <sub>z</sub> -3a

**Table 8: Current Transformer -  $S_{DS} = 1.78$  at  $z/h = 1.0$**

JKM-5C	GE	Current Transformer	25	UUT <sub>z</sub> -3a
780-122	ITI	Current Transformer	50	UUT <sub>y</sub> -4, UUT <sub>z</sub> -3b
680-122	ITI	Current Transformer	34	Interpolated
680-152	ITI	Current Transformer	34	UUT <sub>x</sub> -4a
680-202	ITI	Current Transformer	34	Interpolated
680-302	ITI	Current Transformer	34	Interpolated
680-402	ITI	Current Transformer	34	UUT <sub>x</sub> -4b
685-122	ITI	Current Transformer	64	Interpolated
685-152	ITI	Current Transformer	64	UUT <sub>x</sub> -4a
685-202	ITI	Current Transformer	64	Interpolated
685-302	ITI	Current Transformer	64	Interpolated
685-402	ITI	Current Transformer	64	UUT <sub>x</sub> -4b

**Table 9: Control Potential Transformer -  $S_{DS} = 1.78$  at  $z/h = 1.0$**

4105-08	AFP	EpoxyCast	250	UUT <sub>x</sub> -4a

**Table 10: Surge Arrestors -  $S_{DS} = 1.78$  at  $z/h = 1.0$**

9L20AXX009XHS	GE	15kV RMS	11	UUT <sub>x</sub> -4ab
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**General Notes:**

<sup>1</sup> <sub>x, y</sub> and <sub>z</sub> indicates the test report in which the units were qualified under: <sub>x</sub> - JID 19-01389, <sub>y</sub> - T45832 and <sub>z</sub> - T58426

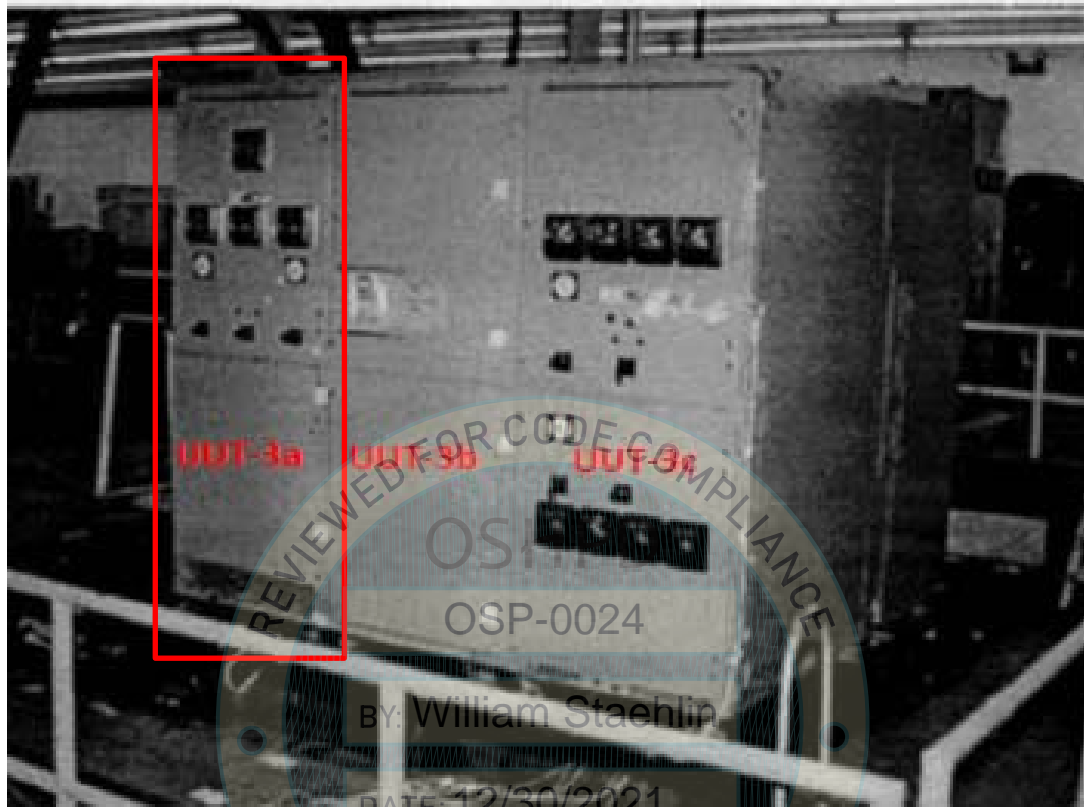
<sup>2</sup> UUT<sub>z</sub>-4a,b utilized the same subcomponents as UUT<sub>z</sub>-3a,b which achieved higher seismic level. Therefore the subcomponents are not listed for UUT<sub>z</sub>-4a,b.

UUT<sub>y</sub>-3a

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T45832
<b>Model Number:</b> MSVG-1H	<b>UUT No. in Test Report:</b> 6225768-Q-D1
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple	
<b>UUT Description:</b> The unit is constructed of a three-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT <sub>y</sub> -3a is a 36inch wide 1-high breaker configuration.	
<b>UUT Components:</b> NEMA1 12ga Carbon Steel Enclosure with a 3000A Square D Medium Voltage Circuit Breakers & Cradel (VR-15100-30).	

**UUT PROPERTIES**

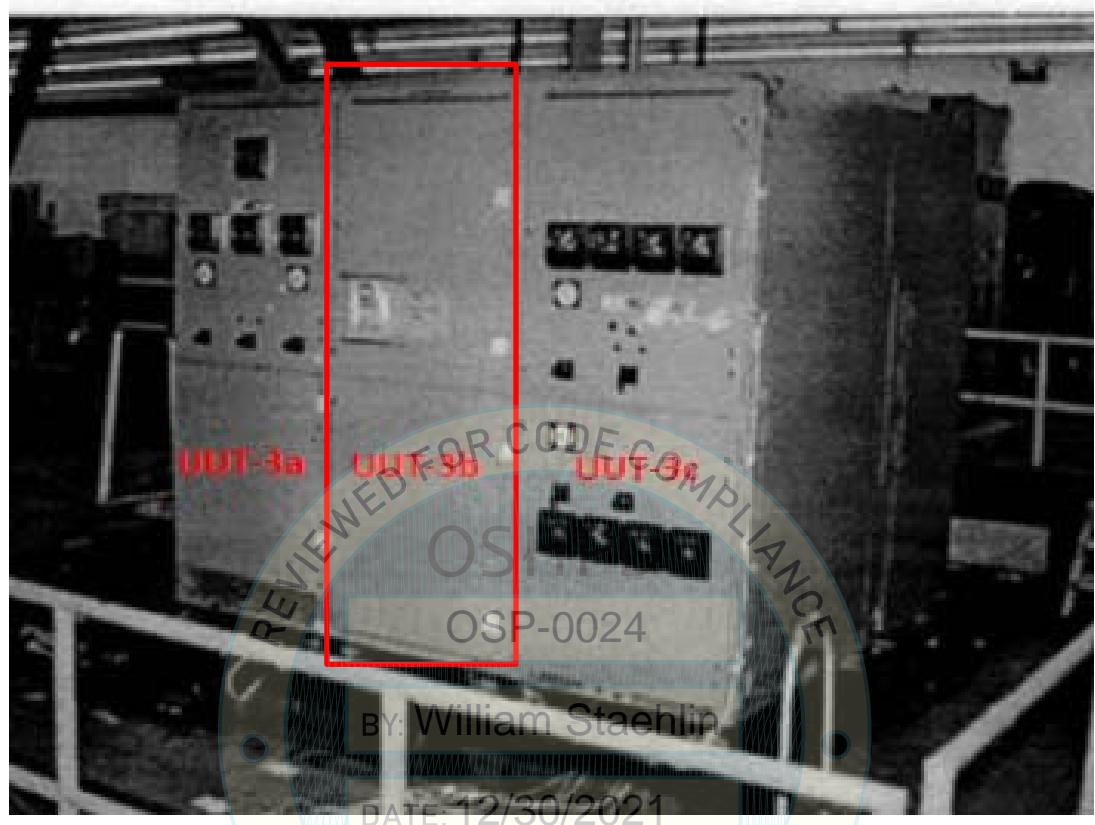
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,000	36.0	93.0	95.0	10.5	2.5	17.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	1.78	1.00	1.50	2.85g	2.14g	1.19g	0.48g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T45832
<b>Model Number:</b> MSVG-C	<b>UUT No. in Test Report:</b> 6225768-Q-D1
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple	
<b>UUT Description:</b> The unit is constructed of a three-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT <sub>y</sub> -3b is a 36inch wide single high control section.	
<b>UUT Components:</b> NEMA1 12ga Carbon Steel Enclosure, with potential transformers (763X121031, 765X121050), LCD PC (C-TPC1770H), and protective relays (SR489, 750P5G5S6H1A)	

UUT PROPERTIES							
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)			
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V	
2,550	36.0	93.0	95.0	10.5	2.5	17.0	
SEISMIC TEST PARAMETERS							
Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	1.78	1.00	1.50	2.85g	2.14g	1.19g	0.48g

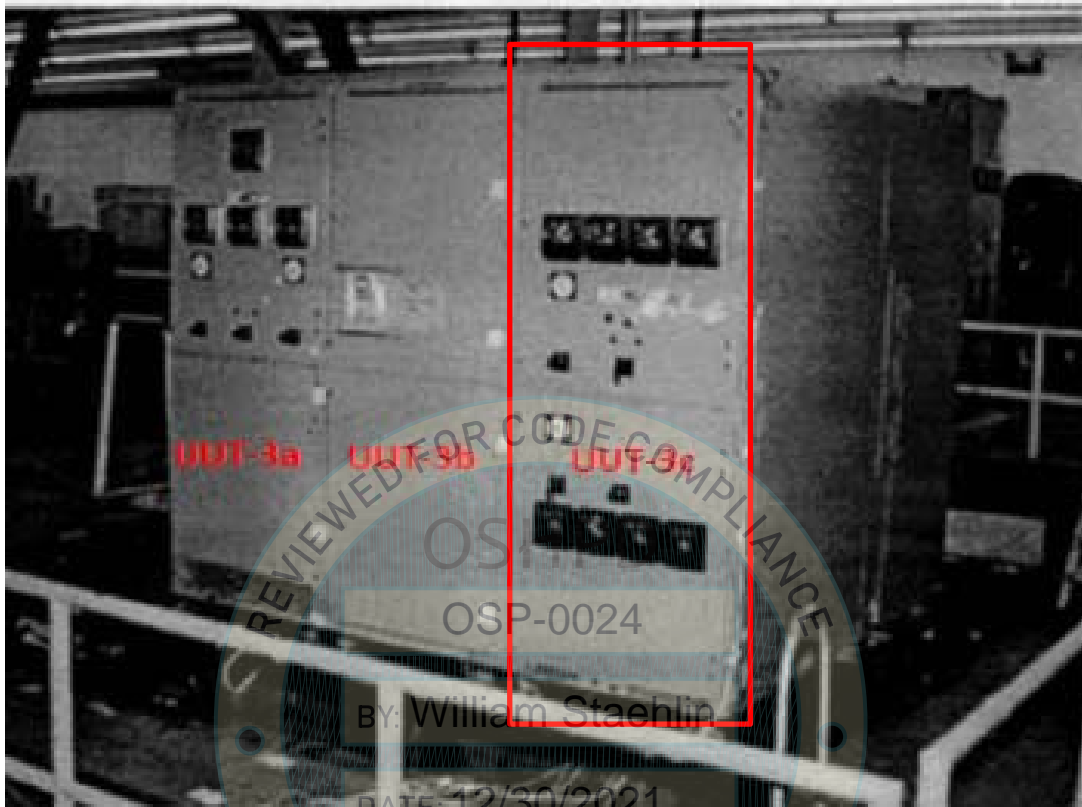
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>y</sub>-3c

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T45832
<b>Model Number:</b> MSVG-2H	<b>UUT No. in Test Report:</b> 6225768-Q-D1
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple	
<b>UUT Description:</b> The unit is constructed of a three-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT <sub>y</sub> -3c is a 36inch wide 2-high breaker / control section.	
<b>UUT Components:</b> NEMA1 12ga Carbon Steel Enclosure with Square D Medium Voltage Circuit Breakers & Cradel (VR-15100-12, VR-15100-20) and protective system (SR489).	

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
2,900	36.0	93.0	95.0	10.5	2.5	17.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	1.78	1.00	1.50	2.85g	2.14g	1.19g	0.48g

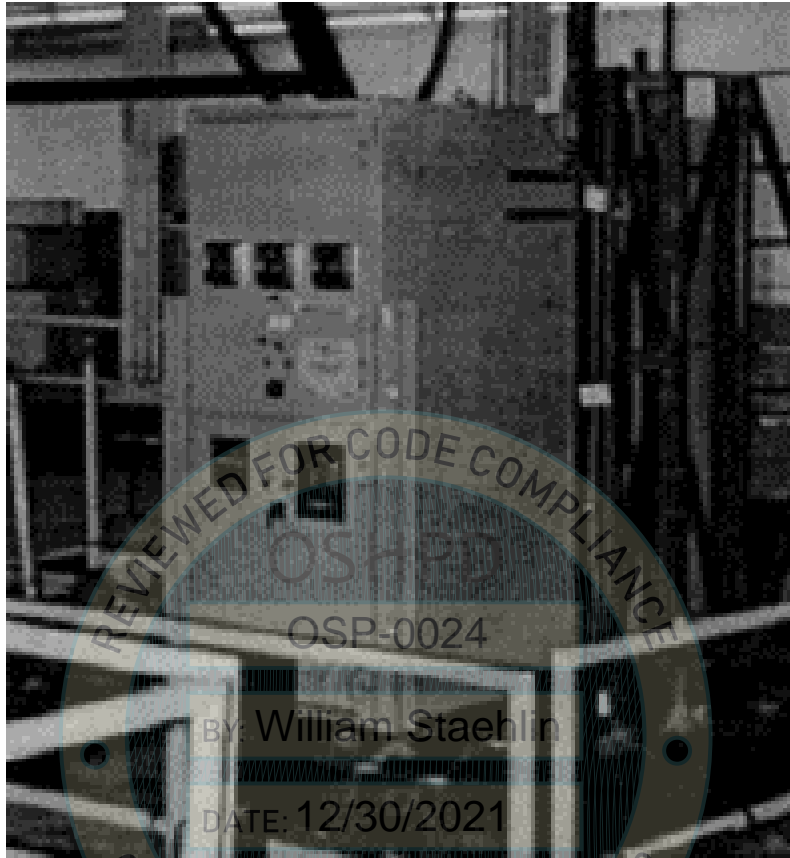
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>y</sub>-4

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (8) 1/2" diameter grade 5 bolts.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc.
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T45832
<b>Model Number:</b> MSVG-2H	<b>UUT No. in Test Report:</b> 6225768-Q-D2
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple	
<b>UUT Description:</b> The unit is constructed of a standalone single-section 2-high breaker / control configuration.	
<b>UUT Components:</b> NEMA1 12ga Carbon Steel Enclosure with Square D Medium Voltage Circuit Breakers (VR-05025-12, VR-05025-20), Protective Relay (BE1-47N), and Current Transformer (780-122).	

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
2,900	36.0	93.0	95.0	8.5	3.3	29.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	1.78	1.00	1.50	2.85g	2.14g	1.19g	0.48g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>z</sub>-3a

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 5/8" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T58426
<b>Model Number:</b> MSVG-2H	<b>UUT No. in Test Report:</b> UUT-2 and 3

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>z</sub>-3a is a 36inch wide 2-high breaker / control section.

**UUT Components:**

NEMA1 11ga Carbon Steel Enclosure with Eaton Medium Voltage Circuit Breakers & Cradle (50VCP-W350, 150VCP-W1000), Protective Relays (BE1-47N, 750P5G5S6H1A), and Current Transformer (JKM-5C).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,000	36.0	96.0	102.0	9.9	5.8	14.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.20g	2.40g	1.34g	0.54g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>z</sub>-3b

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 5/8" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T58426
<b>Model Number:</b> MSVG-C	<b>UUT No. in Test Report:</b> UUT-2 and 3
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple	
<b>UUT Description:</b> The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT <sub>z</sub> -3b is a 36inch wide 2-high control section.	
<b>UUT Components:</b> NEMA1 11ga Carbon Steel Enclosure with Potential Transformers (763X121031, 765X121050), and Current Transformers (780-122).	

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3,000	36.0	96.0	102.0	9.9	5.8	14.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.20g	2.40g	1.34g	0.54g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.



UUT<sub>z</sub>-4a

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (8) 5/8" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T58426
<b>Model Number:</b> MSVG-2H; MSVG-3H	<b>UUT No. in Test Report:</b> UUT-4
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple	
<b>UUT Description:</b> The unit is constructed of a two-section switchgear lineup within a NEMA3R enclosure. The sections are bolted together and individually anchored to the floor of the enclosure. UUT <sub>z</sub> -4a is a 36inch wide 3-high breaker section.	

**UUT Components:**  
NEMA3R 11ga Carbon Steel Enclosure with Eaton Medium Voltage Circuit Breakers & Cradle (50VCP-W350, 150VCP-W1000), Protective Relays (BE1-47N, 750P5G5S6H1A), and Current Transformer (JKM5C).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
4,872	36.0	93.0	95.0	17.0	5.1	17.5

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	1.15	1.00	1.50	1.84g	1.38g	0.77g	0.31g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>z</sub>-4b

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (8) 5/8" diameter grade 5 bolts per section.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Wyle Laboratory, Inc
<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> T58426
<b>Model Number:</b> MSVG-2H; MSVG-3H	<b>UUT No. in Test Report:</b> UUT-4
<b>UUT Function:</b> Power Control System to monitor & transfer various electrical loads between multiple	
<b>UUT Description:</b> The unit is constructed of a two-section switchgear lineup within a NEMA3R enclosure. The sections are bolted together and individually anchored to the floor of the enclosure. UUT <sub>z</sub> -4b is a 36inch wide 2-high breaker section.	
<b>UUT Components:</b> NEMA3R 11ga Carbon Steel Enclosure with Potential Transformers (763X121031, 765X121050), and Current Transformers (780-122).	

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
4,873	36.0	93.0	95.0	17.0	5.1	17.5

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	1.15	1.00	1.50	1.84g	1.38g	0.77g	0.31g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT<sub>x</sub>-4a

**UNIT UNDER TEST (UUT)  
SUMMARY SHEET**



**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.



**Manufacturer:** Russelectric, Inc. **DATE:** 12/30/2021 **Test Location:** Clark Laboratories

**Product Line:** Medium Voltage Switchgear Systems **Report Number:** JID 19-01389

**Model Number:** MSVG-1H **UUT No. in Test Report:** UUT-4

**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>x</sub>-4a is a 36inch wide control section.

**UUT Components:**

NEMA1 11ga Carbon Steel Enclosure with Siemens Medium Voltage Circuit Breakers & Cradle (515-GMSG-25-1200), Potential Transformers ((2) 7525A67G10), Current Transformer (680-152, 685-152), Flat Panel Display (HIS-ML19.5-CTTA), Feeder Relay (SEL-751A), CPT (4105-08) and Surge Arresters (9L20AXX009XHS).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
4,491	36.0	99.0	95.0	14.1	10.6	11.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.20g	2.40g	-	-
	2.50	1.00	1.50	-	-	1.67g	0.67g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**Mounting Details:** Floor mounted with (6) 1/2" diameter grade 5 bolts per section.

**Required Modification:** Din rail mounted power supplies required addition of a bracket to pass seismic testing.



<b>Manufacturer:</b> Russelectric, Inc.	<b>Test Location:</b> Clark Laboratories
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<b>Product Line:</b> Medium Voltage Switchgear Systems	<b>Report Number:</b> JID 19-01389
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<b>Model Number:</b> MSVG-1H	<b>UUT No. in Test Report:</b> UUT-4
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**UUT Function:** Power Control System to monitor & transfer various electrical loads between multiple

**UUT Description:** The unit is constructed of a two-section switchgear lineup. The sections are bolted together and individually anchored to the floor. UUT<sub>x</sub>-4b is a 36inch wide breaker / control section.

**UUT Components:**  
NEMA1 11ga Carbon Steel Enclosure with Siemens Medium Voltage Circuit Breakers & Cradle (515-GMSG-25-3000), Potential Transformers ((3) 7525A68G10), Current Transformer (680-402, 685-402), Feeder Relay (SEL-751A), Battery (SDU 24-BAT), and Power Supply (QS20.241).

**UUT PROPERTIES**

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
4,300	36.0	99.0	95.0	14.1	10.6	11.0

**SEISMIC TEST PARAMETERS**

Test Criteria	S <sub>DS</sub> (g)	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 2019 / ICC-ES-AC156	2.00	1.00	1.50	3.20g	2.40g	-	-
	2.50	1.00	1.50	-	-	1.67g	0.67g

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.