APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0345

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: i-Gard Corporation

Manufacturer's Technical Representative: Amira Shokr

Mailing Address: 7686 Bath Road, Mississauga, ON L4T 1L2

Telephone: (905) 673-1553 Email: ashokr@i-gard.com

Product Information

Product Name: Neutral Grounding Resistors (NGR)

Product Type: Electrical Equipment

Product Model Number: See Attachments
(List all unique product identification numbers and/or part numbers)

General Description: NGR is used in an electrical system similar to fuse and protect personnel and equipment from damage. NGR limits the duration of electrical fault in a system.

Mounting Description: Rigid Base Mounted and Externally Isolated using Neoprene Isolators

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John P. Giuliano, PE

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: john.giuliano@thevmcgroup.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: 9/27/19

Title: President Company Name: The VMC Group

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

Company Name: The VMC Group

Name: Ken Tarlow California License Number: SE2851

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: ken.tarlow@thevmcgroup.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: PEER, University of California at Berkley

Contact Name: Amarnath Kasalanati

Mailing Address: 1301 S. 46th Street, Building 420, Richmond, California 94804

Telephone: (510) 642-6475 Email: amarnath1@berkley.edu

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.76 (Rigid) and 4.28 (Isolated)

S_{DS} (Design spectral response acceleration at short period, g) = 2.44 (Rigid) and 2.38 (Isolated)

a_p (In-structure equipment or component amplification factor) = 1.0 (Rigid) and 2.5 (Isolated)

R_p (Equipment or component response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See Attachments

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

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

Design Basis of Equipment or Components (V/W) =

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) =

Ω_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):

OSHPD Approval (For Office Use Only) – **Approval Expires on November 19, 2027**

Signature: _____ Date: November 19, 2021

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = See Above z/h = 1

Condition of Approval (if applicable):

Table 1: Certified Product Matrix

Serial Number	Max. Dimensional Data				Product Config.	Product Specifications				UUT
	Length [in]	Width [in]	Height [in]	Weight[1] [lb]		Enclosure Type	NGR Type	Voltage L / N [volt]	Current [ampere]	
4	23	16	7	30	Type A	NEMA 3R	277-1-C	277	1	UUT-1
3	23	16	7	40	Type A	NEMA 3R	347-5-60148	347	5	Interpolated
5	23	16	7	40	Type A	NEMA 3R	277-2-C	277	2	Interpolated
6	23	16	7	40	Type A	NEMA 3R	277-5-C	277	5	Interpolated
7	23	16	7	40	Type A	NEMA 3R	347-1-C	347	1	Interpolated
8	23	16	7	40	Type A	NEMA 3R	347-2-C	347	2	Interpolated
9	23	16	7	40	Type A	NEMA 3R	347-5-10S	347	5	Interpolated
10	23	16	7	40	Type A	NEMA 3R	347-15-10S	347	15	Interpolated
11	23	16	14.5	50	Type A	NEMA 3R	347-10-60158	347	10	Interpolated
13	23	16	14.5	50	Type A	NEMA 3R	277-10-C	277	10	Interpolated
12	23	16	14.5	50	Type A	NEMA 3R	277-5-C/CT	277	5	Interpolated
14	23	16	14	50	Type A	NEMA 3R	347-5-C/CT	347	5	UUT-2
15	40	28	26.5	175	Type B	NEMA 3R	277-25-C	277	25	UUT-3
16	40	28	26.5	180	Type B	NEMA 3R KD	347-15-C	347	15	Interpolated
17	40	28	26.5	180	Type B	NEMA 3R KD	347-25-C	347	25	Interpolated
18	40	28	26.5	180	Type B	NEMA 3R KD	2400-5-10S	2400	5	Interpolated
19	40	28	26.5	180	Type B	NEMA 3R KD	2400-10-10S	2400	10	Interpolated
45	40	36	38.5	265	Type B	NEMA 3R KD	4160-15-10S	4160	15	UUT-4

Table 1: Certified Product Matrix, Continued

Serial Number	Max. Dimensional Data				Product Config.	Product Specifications				UUT
	Length [in]	Width [in]	Height [in]	Weight[1] [lb]		Enclosure Type	NGR Type	Voltage L / N [volt]	Current [ampere]	
20	40	36	38.5	350	Type B	NEMA 3R KD	2400-300-62566	2400	300	Interpolated
21	40	36	38.5	350	Type B	NEMA 3R KD	2400-200-62562	2400	200	Interpolated
22	40	36	38.5	350	Type B	NEMA 3R KD	2400-100-62556	2400	100	Interpolated
23	40	36	38.5	350	Type B	NEMA 3R KD	2400-400-62570	2400	400	Interpolated
24	40	36	38.5	350	Type B	NEMA 3R KD	1390-5-C	1390	5	Interpolated
25	40	36	38.5	350	Type B	NEMA 3R KD	2400-2-C	2400	2	Interpolated
26	40	36	38.5	350	Type B	NEMA 3R KD	2400-3-C	2400	3	Interpolated
27	40	36	38.5	350	Type B	NEMA 3R KD	2400-4-C	2400	4	Interpolated
28	40	36	38.5	350	Type B	NEMA 3R KD	2400-1-C	2400	1	Interpolated
29	40	36	38.5	350	Type B	NEMA 3R KD	2400-200-10S	2400	200	Interpolated
30	40	36	38.5	350	Type B	NEMA 3R KD	2400-250-10S	2400	250	Interpolated
31	40	36	38.5	350	Type B	NEMA 3R KD	2400-300-10S	2400	300	Interpolated

Table 1: Certified Product Matrix, Continued

Serial Number	Max. Dimensional Data				Product Config.	Product Specifications				UUT
	Length [in]	Width [in]	Height [in]	Weight[1] [lb]		Enclosure Type	NGR Type	Voltage L / N [volt]	Current [ampere]	
32	40	36	38.5	350	Type B	NEMA 3R KD	2400-400-10S	2400	400	Interpolated
42	52	36	38.5	500	Type B	NEMA 3R KD	2400-5-C	2400	5	Interpolated
43	52	36	38.5	500	Type B	NEMA 3R KD	2400-10-C	2400	10	Interpolated
44	52	36	38.5	500	Type B	NEMA 3R KD	2400-25-10S	2400	25	Interpolated
57	52	36	50.5	580	Type B	NEMA 3R KD	2400-100-62558	2400	100	UUT-5
47	52	36	48.5	430	Type B	NEMA 3R KD	1390-400-10S	1390	400	Interpolated
48	52	36	48.5	430	Type B	NEMA 3R KD	2400-5-C/CT	2400	5	Interpolated
49	52	36	48.5	430	Type B	NEMA 3R KD	2400-10-C/CT	2400	10	Interpolated
50	52	36	48.5	430	Type B	NEMA 3R KD	2400-100-60S	2400	100	Interpolated
51	52	36	48.5	430	Type B	NEMA 3R KD	2400-100-10S/CT	2400	100	Interpolated
52	52	36	48.5	430	Type B	NEMA 3R KD	2400-200-10S/CT	2400	200	Interpolated
53	52	36	48.5	430	Type B	NEMA 3R KD	2400-300-10S/CT	2400	300	Interpolated

Table 1: Certified Product Matrix, Continued

Serial Number	Max. Dimensional Data				Product Config.	Product Specifications				UUT
	Length [in]	Width [in]	Height [in]	Weight[1] [lb]		Enclosure Type	NGR Type	Voltage L / N [volt]	Current [ampere]	
54	52	36	48.5	430	Type B	NEMA 3R KD	2400-400-10S/CT	2400	400	Interpolated
55	52	36	48.5	430	Type B	NEMA 3R KD	2400-800-10S	2400	800	Interpolated
46	52	36	38.5	350	Type C	NEMA 3R KD	2400-50-60S	2400	50	Interpolated
56	50	50	48.5	520	Type C	NEMA 3R/4	2400-50-60S/CT	2400	50	UUT-6
58	52	36	66.5	720	Type C	NEMA 3R/4	4160-100-60S	4160	100	Interpolated
33	50	50	66.5	720	Type C	NEMA 3R/4	8000-100-62715	8000	100	UUT-7
34	50	50	66.5	720	Type C	NEMA 3R/4	8000-200-62717	8000	200	Interpolated
35	50	50	66.5	720	Type C	NEMA 3R/4	8000-400-62721	8000	400	Interpolated
36	50	50	66.5	720	Type C	NEMA 3R/4	8000-400-62721-New	8000	400	Interpolated
37	50	50	66.5	720	Type C	NEMA 3R/4	2400-25-C	2400	25	Interpolated
38	50	50	66.5	720	Type C	NEMA 3R/4	2400-400-60S	2400	400	Interpolated
39	50	50	66.5	720	Type C	NEMA 3R/4	4160-200-60S	4160	200	Interpolated

Table 1: Certified Product Matrix, Continued

Serial Number	Max. Dimensional Data				Product Config.	Product Specifications				UUT
	Length [in]	Width [in]	Height [in]	Weight[1,2] [lb]		Enclosure Type	NGR Type	Voltage L / N [volt]	Current [ampere]	
40	50	50	66.5	720	Type C	NEMA 3R/4	8000-100-10S	8000	100	Interpolated
41	50	50	66.5	720	Type C	NEMA 3R/4	8000-200-10S	8000	200	Interpolated
64	62	50	66.5	590	Type C	NEMA 3R/4	8000-200-10S/CT	8000	200	UUT-8
59	62	50	66.5	590	Type C	NEMA 3R/4	2400-25-C/CT	2400	25	Interpolated
60	62	50	66.5	590	Type C	NEMA 3R/4	2400-400-60S/CT	2400	400	Interpolated
61	62	50	66.5	590	Type C	NEMA 3R/4	4160-100-60S/CT	4160	100	Interpolated
62	62	50	66.5	590	Type C	NEMA 3R/4	4160-200-60S/CT	4160	200	Interpolated
63	62	50	66.5	590	Type C	NEMA 3R/4	8000-100-10S/CT	8000	100	Interpolated
1	21	16	34.5	95	Type D	NEMA 3R	OHMNI-4PM-10RM	277 L/N	10	UUT-9
2	21	16	34.5	100	Type D	NEMA 3R	OHMNI-6PM-10RM	347 L/N	10	UUT-10

Notes:

1: Maximum weight is listed.

2: UUT 8 NGR was made of Aluminum.

OSHPD OSP PRODUCT MATRIX WITH CERTIFIED SUBCOMPONENTS

Manufacturer: i-Gard Corporation
Product Type: Neutral Grounding Resistors (NGR)
Seismic Level: Sds = 2.44 g, z/h = 1.0 rigid mounted
Sds = 2.38 g, z/h = 1.0 isolator mounted

Product Configuration

Type A:	Resistors supported on side walls of the enclosure and the enclosure is supported at the base.
Type B:	Resistors supported on a rack, rack is base mounted on the enclosure floor and the enclosure is supported at the base.
Type C:	Resistors supported on two racks, one on top of the other, separated by terminals in between bottom rack is base mounted on the enclosure floor and the enclosure is supported at the base.
Type D:	Resistors supported on the back wall of the enclosure and the enclosure is supported at the base.

All product was tested on and certified as hard mounted and isolated

Table 2: Enclosures

Manufacturer	Part No.	Max Dimensions L x W x H [in]	NEMA Type	Material	Weight [lb]	UUT
iGard	LV-2	16 X 23 X 7	3R	Galvanized	40.00	UUT-1
iGard	2LV-2	16 X 23 X 14	3R	Carbon Steel	60.00	UUT-2
iGard	KD-1-SS	24 X 36 X 26 1/2	3R KD	Stainless Steel	180.00	UUT-3
iGard	KD-2	32 X 36 X 28 1/2	3R KD	Carbon Steel	250.00	UUT-4
iGard	KD-3-48H-GL	32 X 48 X 50 1/2	3R KD	Galvanized	500.00	UUT-5
iGard	HV-9	46 X 46 X 48 1/2	3R/4 Welded Frame	Carbon Steel	600.00	UUT-6
iGard	HV-5	46 X 46 X 66 1/2	3R/4 Welded Frame	Stainless Steel	850.00	UUT-7
iGard	HV-6	46 X 58 X 66 1/2	3R/4 Welded Frame	Aluminum	1100.00	UUT-8
iGard	OHMNI-L	16 X 21 X 34 1/2	3R	Carbon Steel	110.00	UUT-9
iGard	OHMNI-L	16 X 21 X 34 1/2	3R	Carbon Steel	110.00	UUT-10

Note: KD is Kock Down

Table 3: Mounting Frames

Manufacturer	Part No.	Material	Weight [lb]	UUT
iGard	4H-SML-5EW	Aluminum	3.00	UUT-3
iGard	5H-LRG-2FDL	Aluminum	4.00	UUT-4
iGard	8H-LRG-6EW	Aluminum	5.00	UUT-5
iGard	5H-LRG-8EW	Aluminum	5.00	UUT-6
iGard	6H-LRG-8EW	Aluminum	6.00	UUT-7
iGard	4H-LRG-8EW	Aluminum	4.00	UUT-8

Table 4: Resistors

Manufacturer	Part No.	Material	Weight [lb]	UUT
iGard	FDL-86500	Nickel-Chromium	1.00	UUT-1
iGard	FDL-8600	Nickel-Chromium	1.00	UUT-2
iGard	EW-5-141	1JR Alloy type 2	3.50	UUT-3
iGard	FDL-13500	Nickel-Chromium	1.00	UUT-4
iGard	EW-6-61	1JR Alloy type 2	4.50	UUT-5
iGard	EW-8-231	1JR Alloy type 2	4.75	UUT-6
iGard	EW-8-231	1JR Alloy type 2	4.75	UUT-7
iGard	EW-8-152	1JR Alloy type 2	5.00	UUT-8
iGard	FDL & EW	Nickel-Chromium	3.50	UUT-9, UUT-10

Table 5: Junction Box

Manufacturer	Part No.	Material	Weight [lb]	UUT
iGard	JB 4X3 1/2 X 6	Carbon Steel	2.00	UUT-1

Table 6: Standoffs

Manufacturer	Part No.	Material	Weight [lb]	UUT
Porcelain Products	5002	Glazed Porcelain	1.00	UUT-4, UUT-5, UUT-6, UUT-7, UUT-8
Porcelain Products	5003	Glazed Porcelain	2.50	UUT-4, UUT-7, UUT-8

Table 7: Current Transformer

Manufacturer	Part No.	Material	Weight [lb]	UUT
GE	600V	Molded Epoxy	25.00	UUT-2
GE	5KV	Molded Epoxy	36.00	UUT-7
GE	15KV	Molded Epoxy	55.00	UUT-8
iGard	600V	Molded Epoxy	8.00	UUT-9, UUT-10

Table 8: Terminal Pads/Bushing

Manufacturer	Part No.	Material	Weight [lb]	UUT
Grt Genesis	600V	Epoxy	0.50	UUT-1, UUT-2, UUT-3
Porcelain Products	5001	Glazed Porcelain	0.75	UUT-4, UUT-5, UUT-6, UUT-7, UUT-8
Porcelain Products	15 KV Bushing	Glazed Porcelain	6.00	UUT-7

Table 9: Terminal Block

Manufacturer	Part No.	Material	Weight [lb]	UUT
Cooper Bussmann	EB27B04SC	Molded Thermoplastic	0.25	UUT-1, UUT-9, UUT-10

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-1A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	277-1-C	iGard

Product Construction Summary

Product Configuration A, NEMA 3R Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors: iGard; Junction Box: iGard; Terminal Pads/Bushing; Grt Genesis; Terminal Block: Cooper Bussmann

UUT Properties

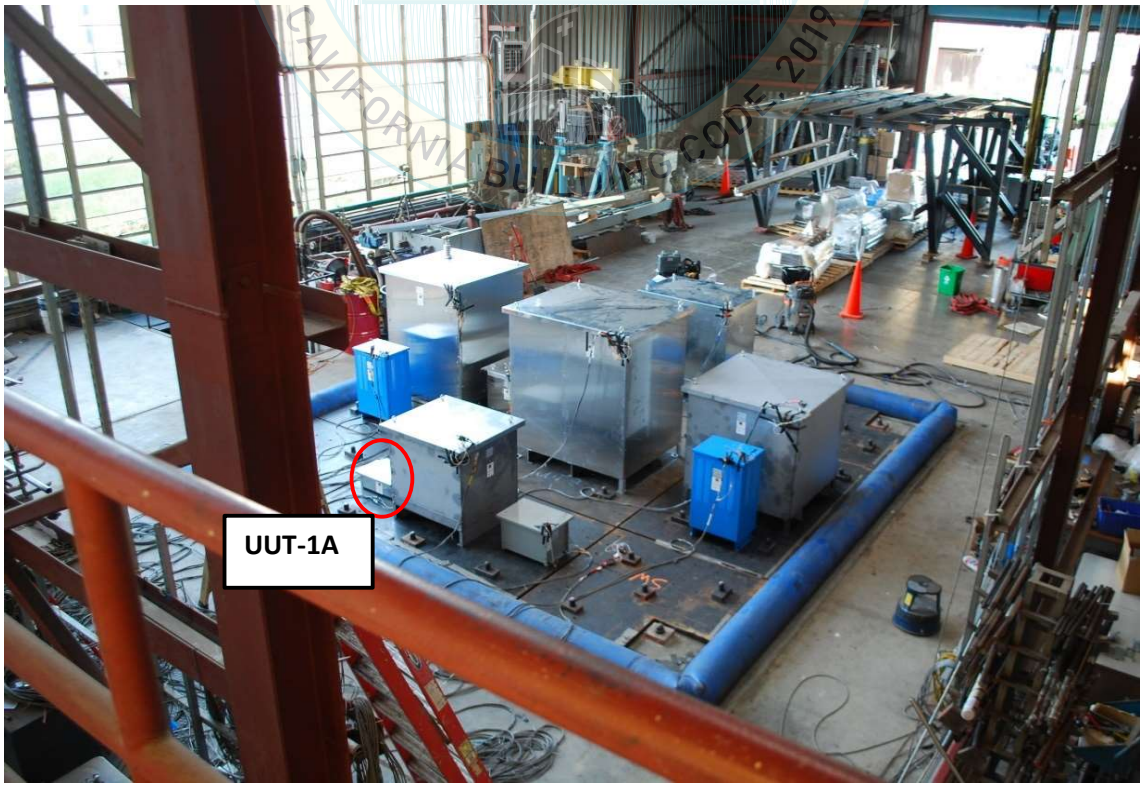
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
30	23	16	7	>33.3	>33.3	>33.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 1/2" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-2A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	347-5-C/CT	iGard

Product Construction Summary

Product Configuration A, NEMA 3R Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors: iGard; Transformer: GE; Terminal Pads/Bushing: Grt Genesis

UUT Properties

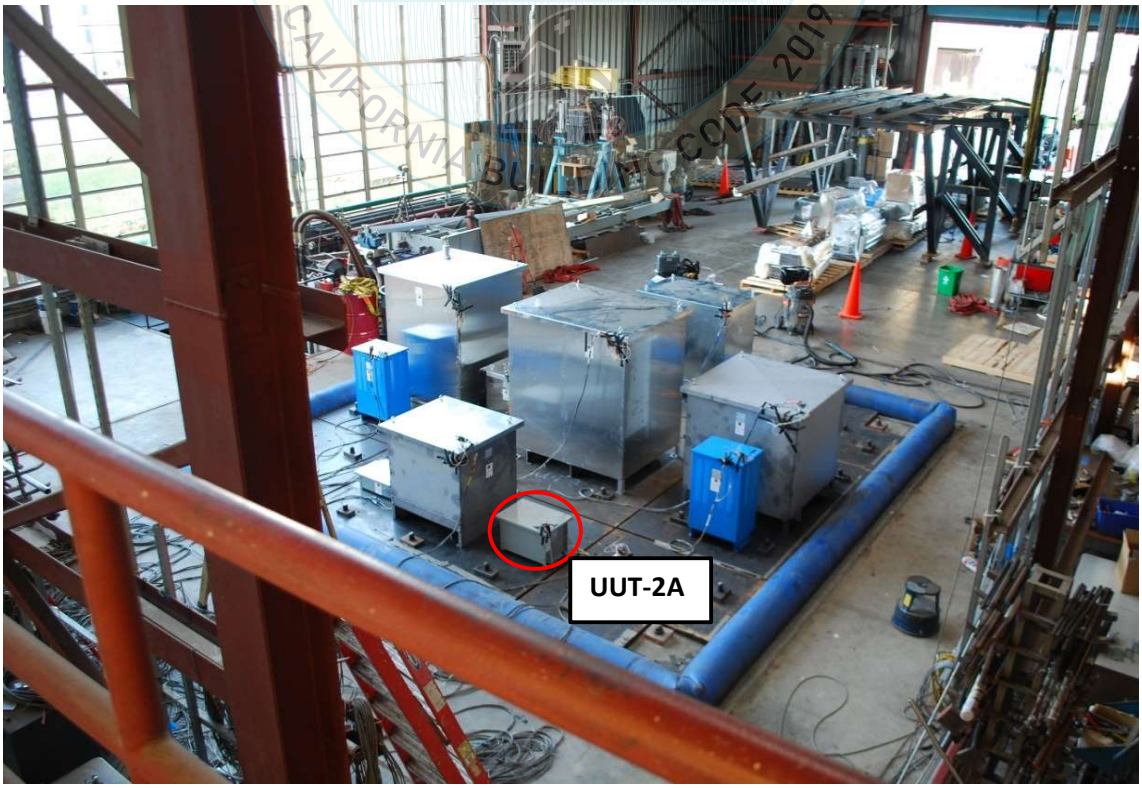
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
50	23	16	14	>33.3	>33.3	>33.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 1/2" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-3A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	277-25-C	iGard

Product Construction Summary

Product Configuration B, NEMA 3R Knock Down Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Terminal Pads/Bushing: Grt Genesis

UUT Properties

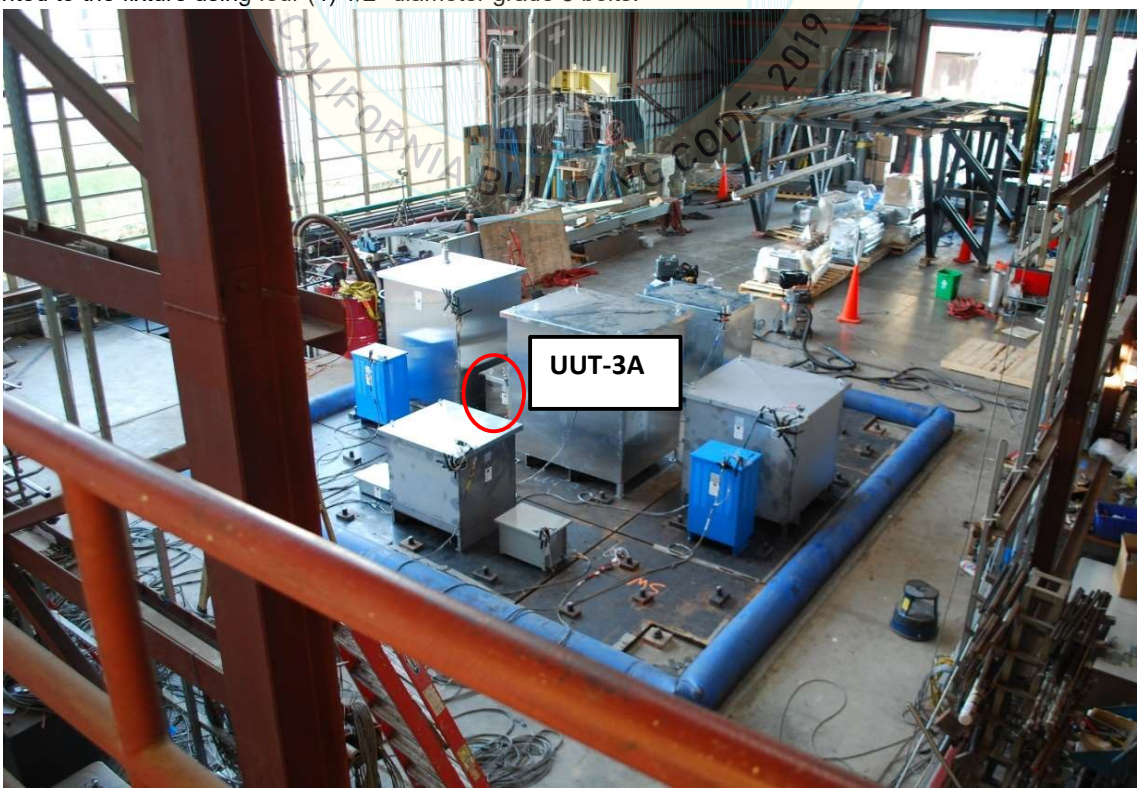
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
175	40	28	26.5	>33.3	>33.3	21.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 1/2" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-4A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	4160-15-10S	iGard

Product Construction Summary

Product Configuration B, NEMA 3R Knock Down Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products; Terminal Pads/Bushing: Porcelain Products

UUT Properties

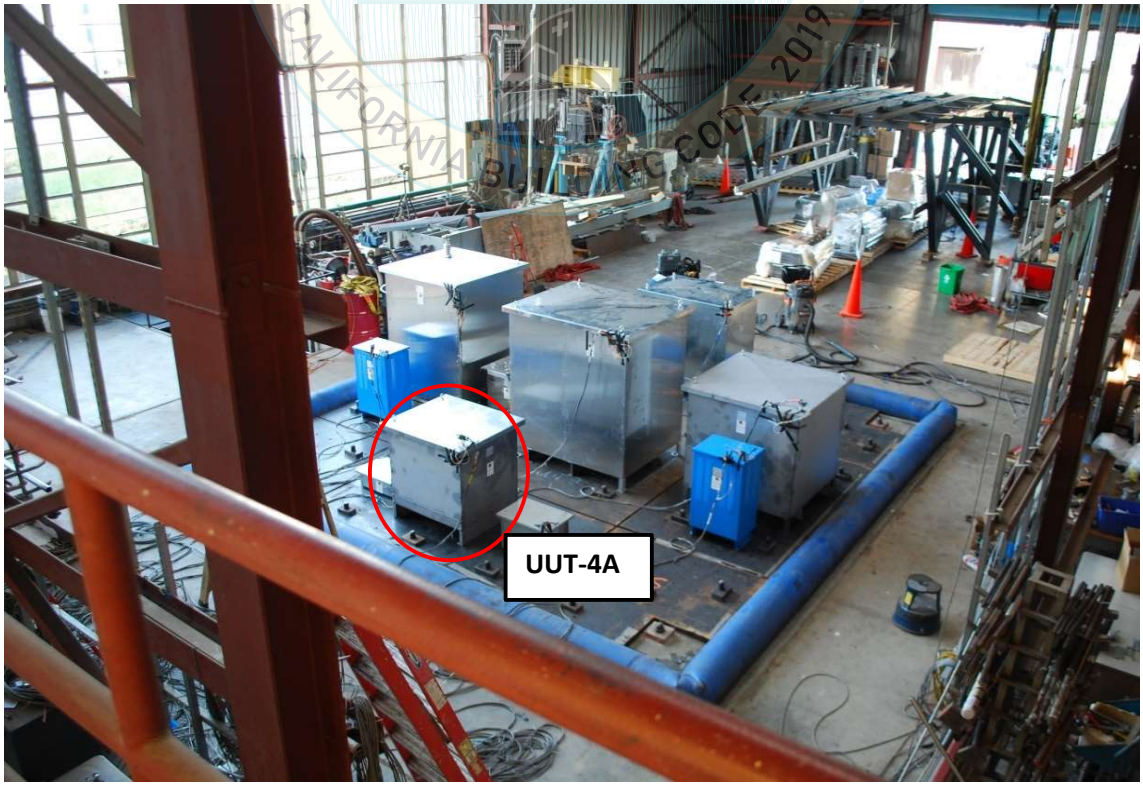
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
265	40	36	38.5	18.2	17.8	18.8

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 1/2" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-5A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	2400-100-62558	iGard

Product Construction Summary

Product Configuration B, NEMA 3R Knock Down Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products; Terminal Pads/Bushing: Porcelain Products

UUT Properties

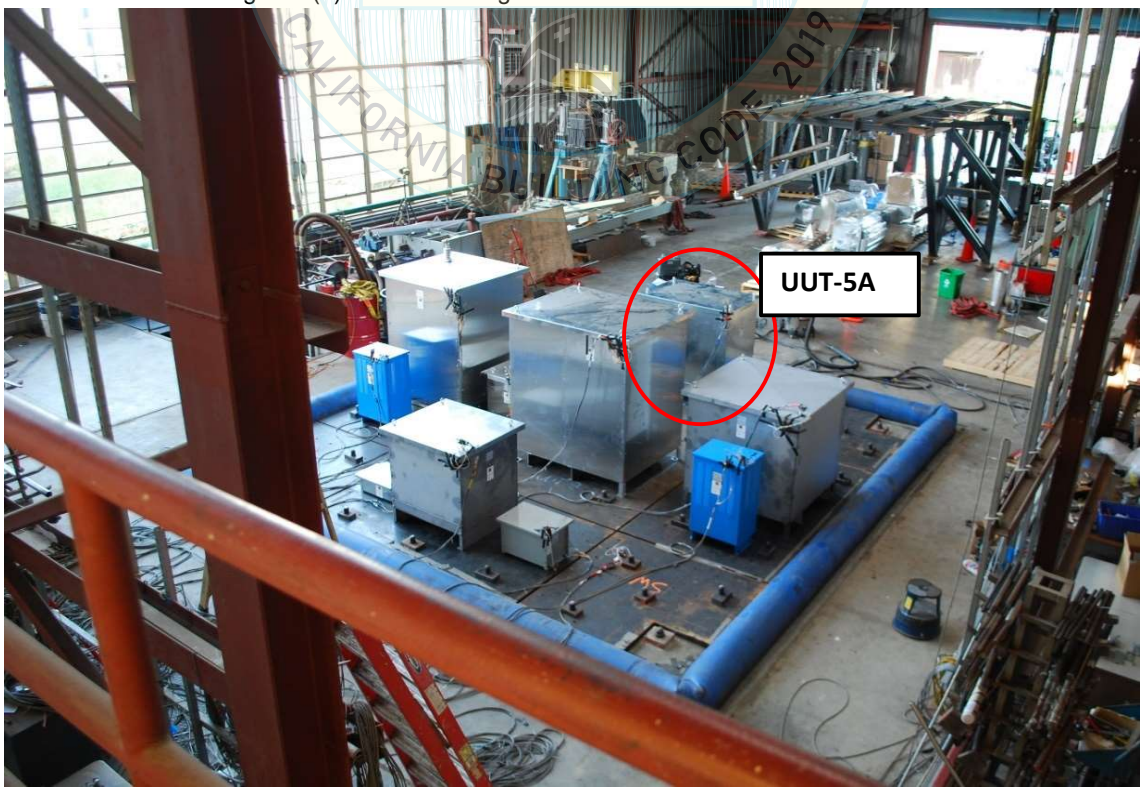
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
580	52	35	50.5	13.1	10.2	21.3

UUT Highest Passed Seismic Run Information

Building Code		S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 5/8" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-6A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	2400-50-60S/CT	iGard

Product Construction Summary

Product Configuration B, NEMA 3R/4 Welded Frame Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors; iGard; Standoffs; iGard; Terminal Pads/Bushing: Porcelain Products

UUT Properties

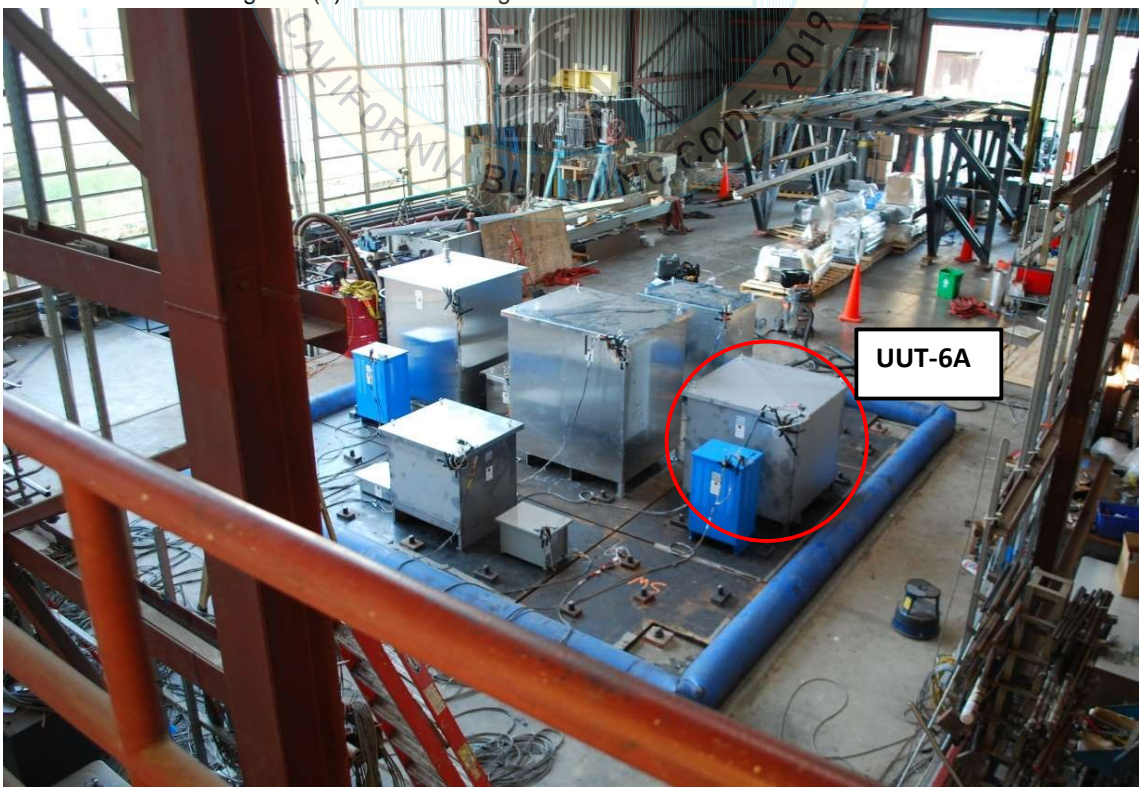
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
520	50	50	48.5	>33.3	18.9	>33.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 1/2" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-7A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	8000-100-62715	iGard

Product Construction Summary

Product Configuration C, NEMA 3R/4 Welded Frame Stainless Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products; Current Transformer: GE; Terminal Pads/Bushing: Porcelain Products

UUT Properties

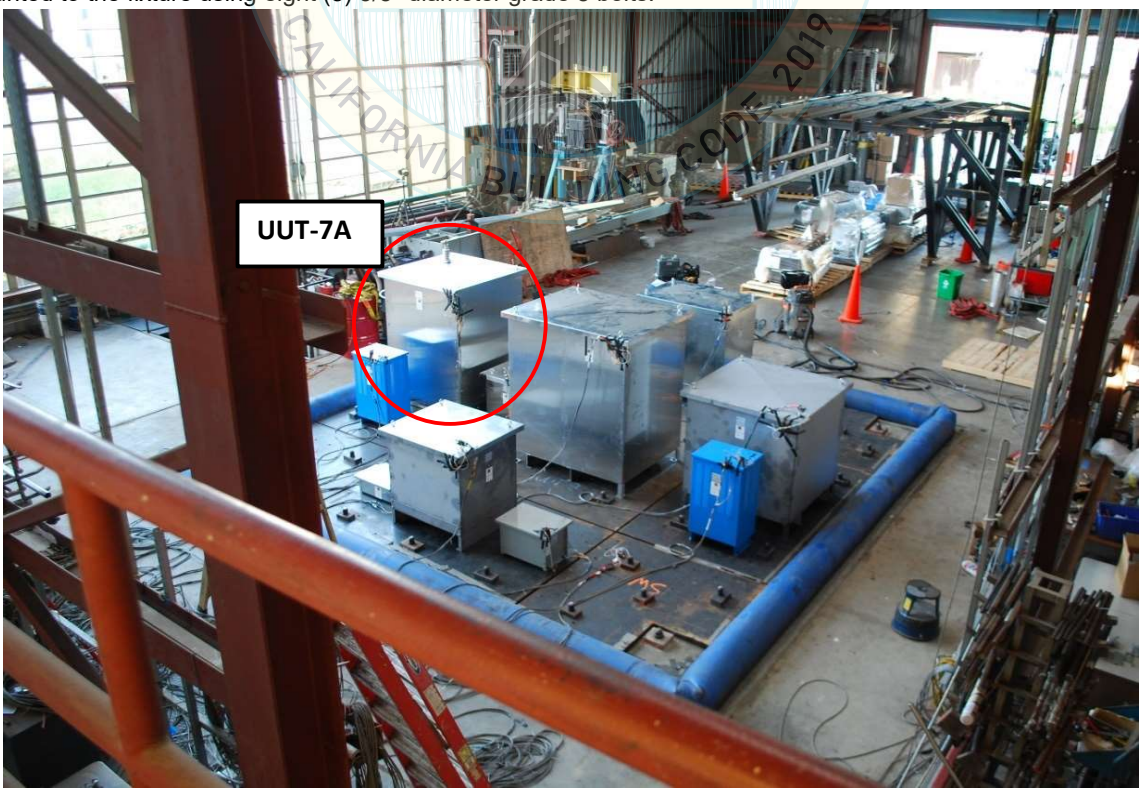
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
720	50	50	66.5	>33.3	19.7	21.1

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using eight (8) 5/8" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-8A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	8000-200-10S/CT	iGard

Product Construction Summary

Product Configuration C, NEMA 3R/4 Welded Frame Aluminum Enclosure

Options / Subcomponent Summary

Enclosure: iGard, Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products;

UUT Properties

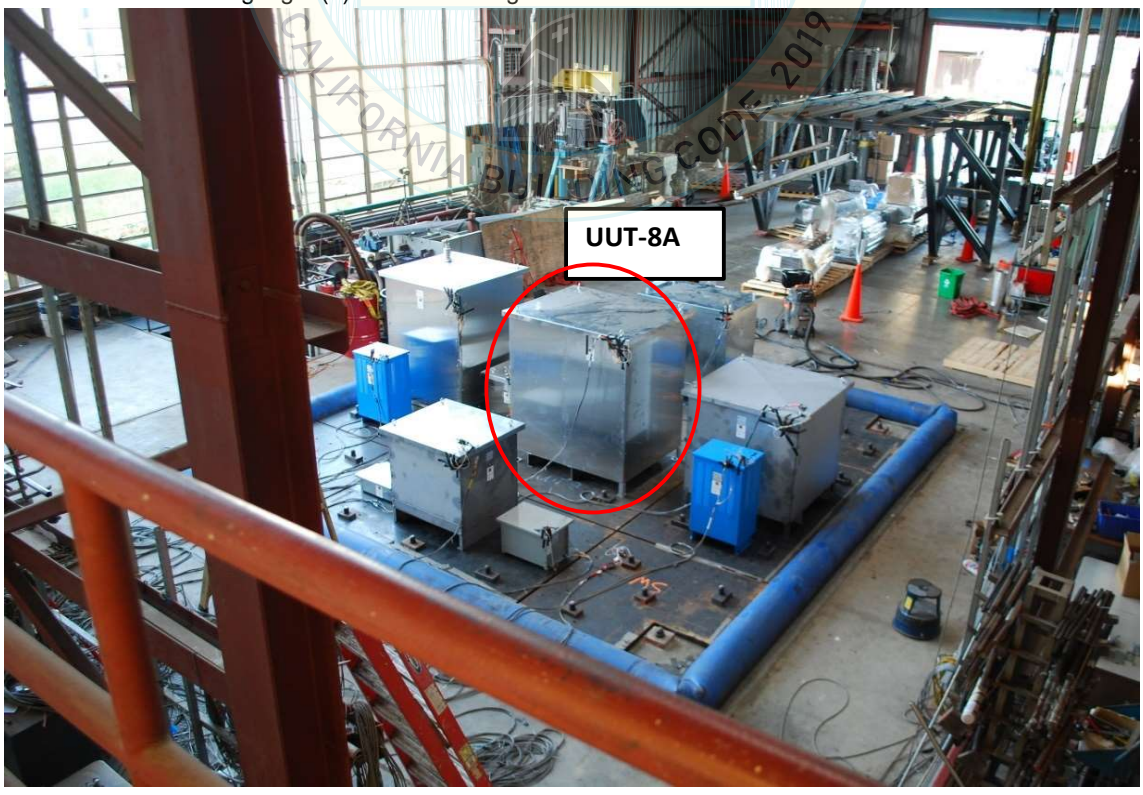
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
590	62	50	66.5	>33.3	19.9	23.1

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using eight (8) 5/8" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-9A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	OHMNI-4PM-10RM	iGard

Product Construction Summary

Product Configuration D, NEMA 3R Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors; iGard; Current Transformer: iGard; Terminal Block: Cooper Bussmann

UUT Properties

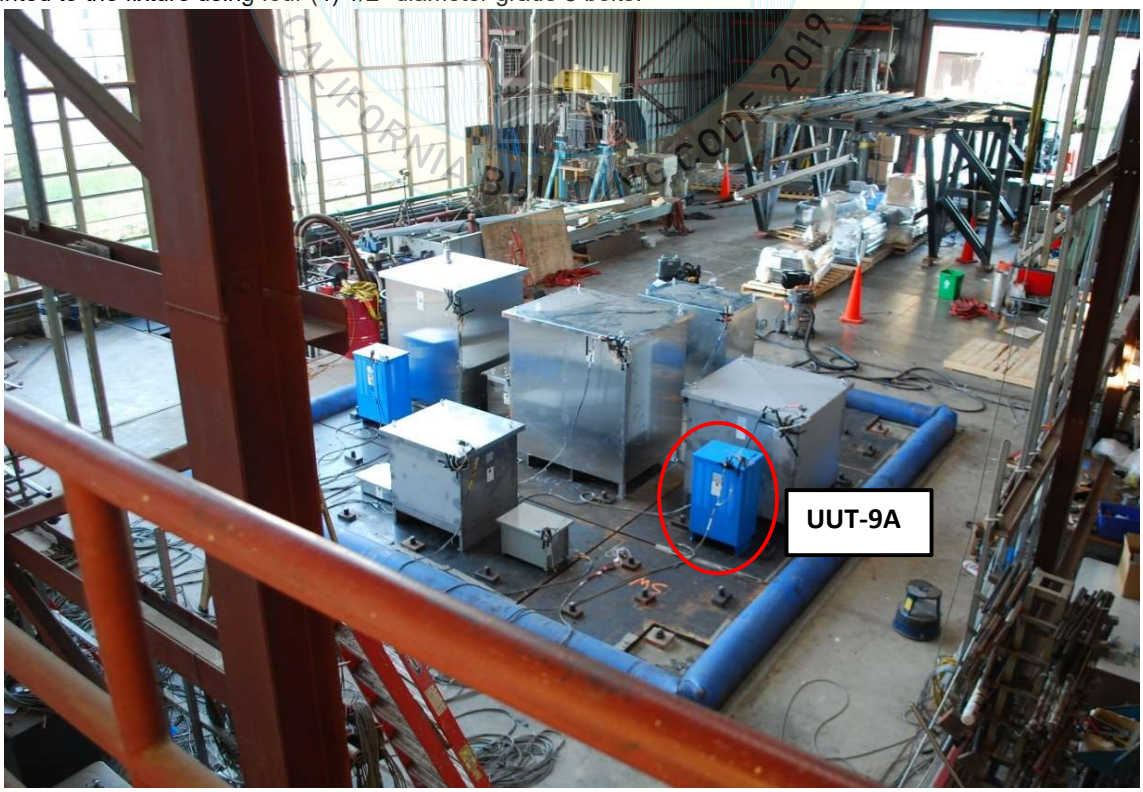
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
95	21	16	34.5	15	18.8	18.6

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 1/2" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-10A

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	OHMNI-6PM-10RM	iGard

Product Construction Summary

Product Configuration D, NEMA 3R Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors; iGard; Current Transformer: iGard; Terminal Block: Cooper Bussmann

UUT Properties

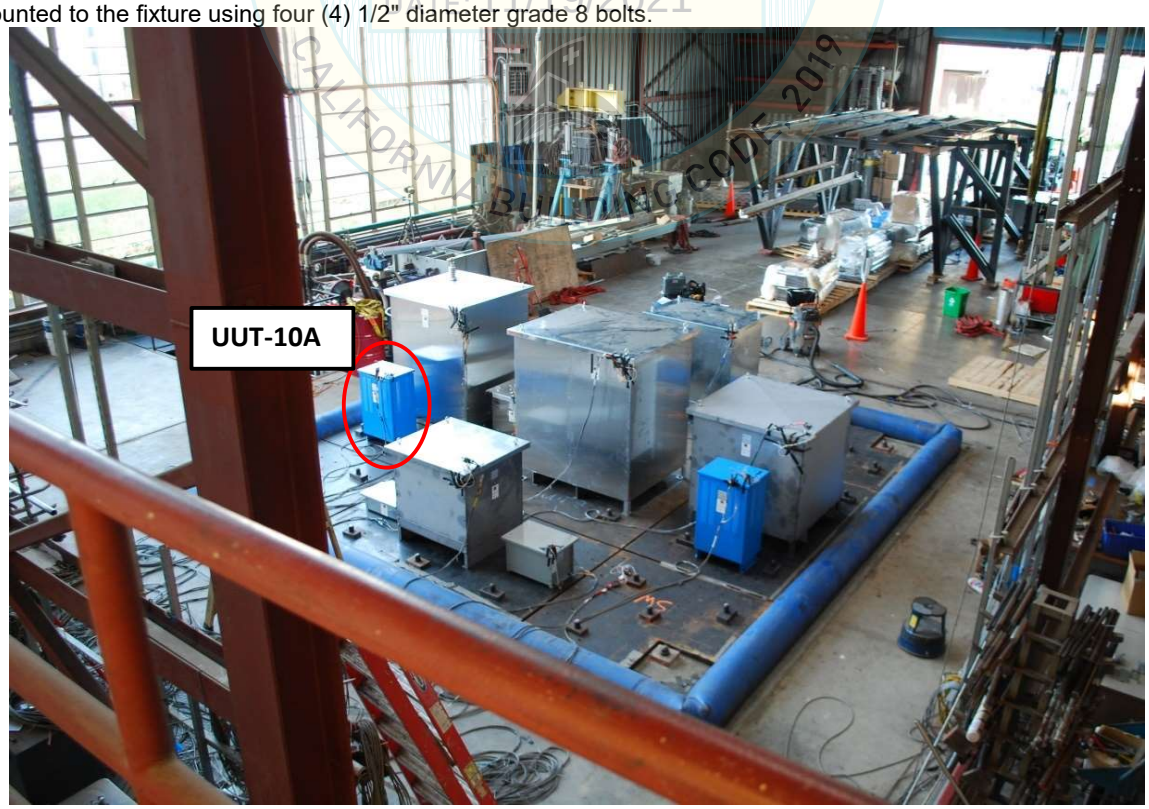
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
100	21	16	34.5	15	14.7	24

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.44	1	1.5	3.90	2.93	1.63	0.65

Test Mounting Details

UUT was mounted to the fixture using four (4) 1/2" diameter grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-1B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	277-1-C	iGard

Product Construction Summary

Product Configuration A, NEMA 3R Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors: iGard; Junction Box: iGard; Terminal Pads/Bushing; Grt Genesis; Terminal Block: Cooper Bussmann

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
30	23	16	7	>33.3	>33.3	>33.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC RDC2-175 rubber isolators. The isolators were attached to the fixture using eight (8) 3/8" grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-2B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	347-5-C/CT	iGard

Product Construction Summary

Product Configuration A, NEMA 3R Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors: iGard; Transformer: GE; Terminal Pads/Bushing: Grt Genesis

UUT Properties

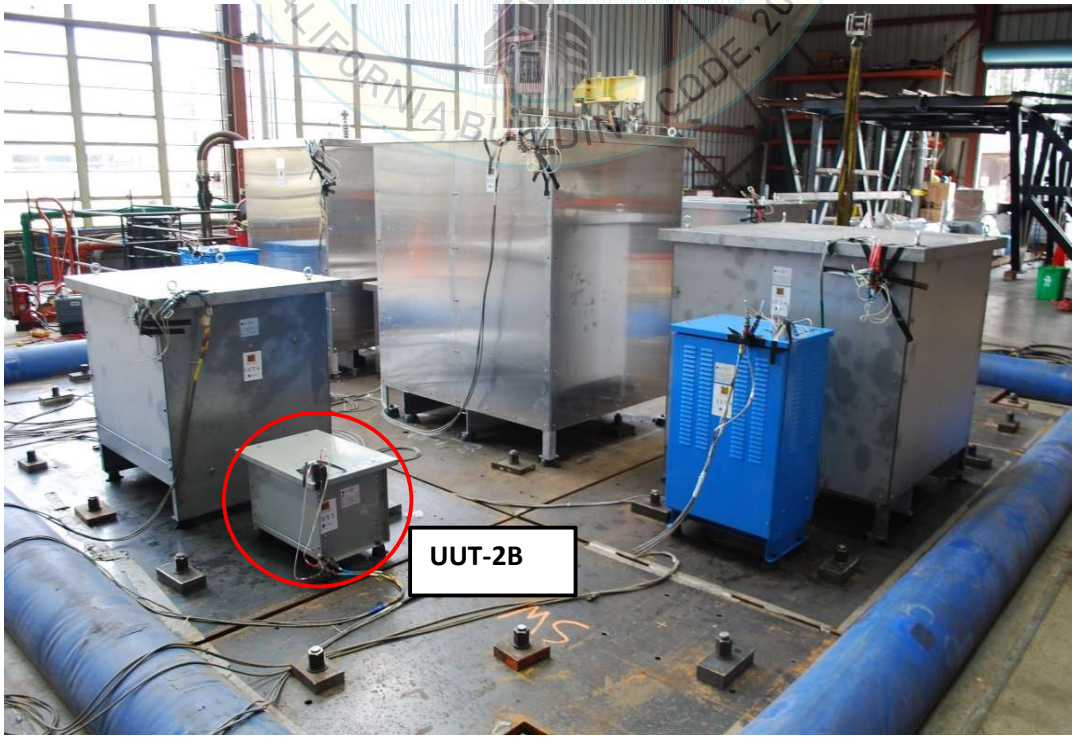
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
50	23	16	14	27.2	22.5	27.2

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC RDC2-175 rubber isolators. The isolators were attached to the fixture using eight (8) 3/8" grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-3B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	277-25-C	iGard

Product Construction Summary

Product Configuration B, NEMA 3R Knock Down Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Terminal Pads/Bushing: Grt Genesis

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
175	40	28	26.5	13.1	12.7	21.5

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC RDC2-175 rubber isolators. The isolators were attached to the fixture using eight (8) 3/8" grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-4B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	4160-15-10S	iGard

Product Construction Summary

Product Configuration B, NEMA 3R Knock Down Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products; Terminal Pads/Bushing: Porcelain Products

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
265	40	36	38.5	7.6	9.8	18

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC RDC2-175 rubber isolators. The isolators were attached to the fixture using eight (8) 3/8" grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-5B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	2400-100-62558	iGard

Product Construction Summary

Product Configuration B, NEMA 3R Knock Down Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products; Terminal Pads/Bushing: Porcelain Products

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
580	52	35	50.5	5.7	5.9	12.7

UUT Highest Passed Seismic Run Information

Building Code		S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC TTB-10-500 rubber isolators. The isolators were attached to the fixture using eight (8) 1/2" grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-6B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	2400-50-60S/CT	iGard

Product Construction Summary

Product Configuration B, NEMA 3R/4 Welded Frame Galvanized Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors; iGard; Standoffs; iGard; Terminal Pads/Bushing: Porcelain Products

UUT Properties

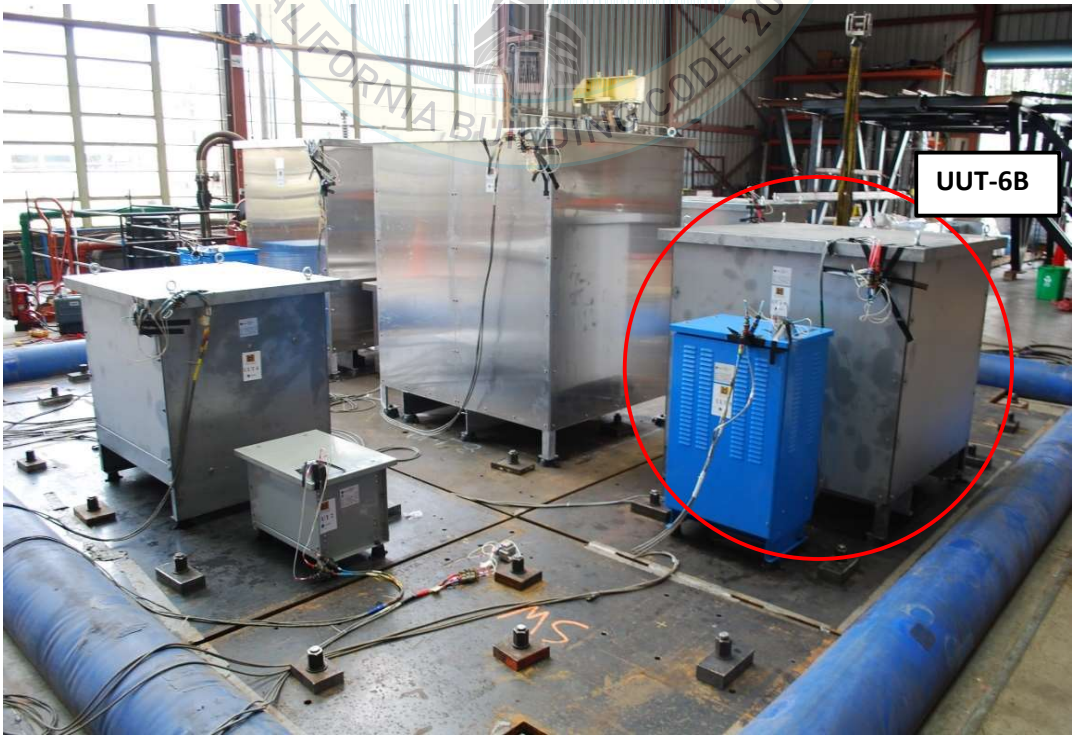
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
520	50	50	48.5	9.8	9.4	16.8

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC RDC2-175 rubber isolators. The isolators were attached to the fixture using eight (8) 3/8" grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-7B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	8000-100-62715	iGard

Product Construction Summary

Product Configuration C, NEMA 3R/4 Welded Frame Stainless Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products; Current Transformer: GE; Terminal Pads/Bushing: Porcelain Products

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
720	50	50	66.5	8.4	6.6	15.4

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using eight (8) VMC TTB-10-500 rubber isolators. The isolators were attached to the fixture using sixteen (16) 1/2" grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-8B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	8000-200-10S/CT	iGard

Product Construction Summary

Product Configuration C, NEMA 3R/4 Welded Frame Aluminum Enclosure

Options / Subcomponent Summary

Enclosure: iGard, Mounting Frame: iGard; Resistors: iGard; Standoffs: Porcelain Products;

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
590	62	50	66.5	8.2	10.6	15.6

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using eight (8) VMC TTB-10-500 rubber isolators. The isolators were attached to the fixture using sixteen (16) 1/2" grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-9B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	OHMNI-4PM-10RM	iGard

Product Construction Summary

Product Configuration D, NEMA 3R Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors; iGard; Current Transformer: iGard; Terminal Block: Cooper Bussmann

UUT Properties

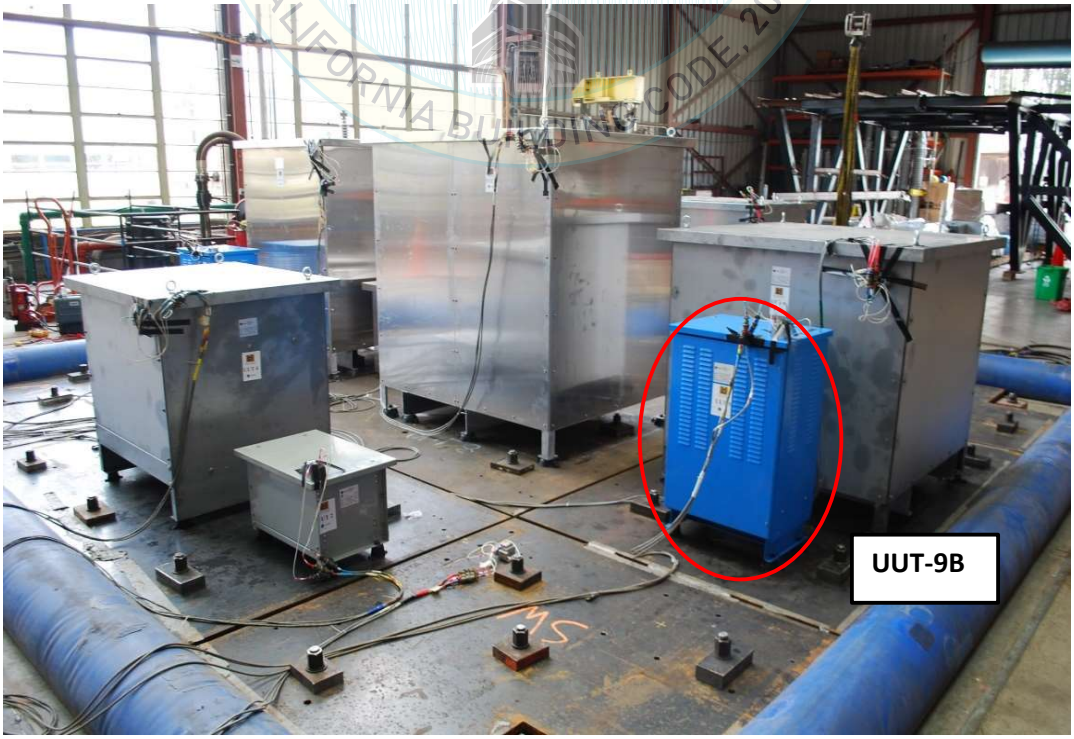
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
95	21	16	34.5	9.8	7.8	27.2

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC RDC2-175 rubber isolators. The isolators were attached to the fixture using eight (8) 3/8" grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-10B

PEER STI 2013-08

Model Line	Model Number	Manufacturer
NGR	OHMNI-6PM-10RM	iGard

Product Construction Summary

Product Configuration D, NEMA 3R Carbon Steel Enclosure

Options / Subcomponent Summary

Enclosure: iGard; Resistors; iGard; Current Transformer: iGard; Terminal Block: Cooper Bussmann

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
100	21	16	34.5	10	7.2	24.2

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.38	1	1.5	3.81	2.86	1.59	0.63

Test Mounting Details

UUT was externally isolated using four (4) VMC RDC2-175 rubber isolators. The isolators were attached to the fixture using eight (8) 3/8" grade 8 bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.