APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0178

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Eaton

Manufacturer's Technical Representative: Tom Farr

Mailing Address: 221 Heywood Road

Telephone: 828-651-3135 Email: ThomasAFarr@eaton.com

Product Information

Product Name: AMPGARD

Product Type: Medium Voltage Motor Control

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

General Description: MV Motor Control, NEMA 1 & 3R Enclosures, 15kV, Reduced Voltage (Autotransformer & Solid State), Full Voltage and synchronous starters. Seismic enhancements made to the test units and modifications required to address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid floor mounted. Includes both stand alone and ganged assemblies as noted in the product range summary.

Applicant Information

Applicant Company Name: Eaton

Contact Person: Eddie Wilkie

Mailing Address: 175 Vista Blvd, Arden, NC 28704

Telephone: 828-651-0707 Email: eddiewilkie@eaton.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: Eddie Wilkie Date: 6/9/21

Title: Director of Engineering Company Name: Eaton

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

Company Name: ISAT

Name: William V. Joerger California License Number: SE 4545

Mailing Address: 1020 Crews Road, Quite Q, Matthews, NC 28105

Telephone: 510-714-0216 Email: wvjoerger@isatsb.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: NTS Laboratories

Contact Name: Tom Boonarkat

Mailing Address: P.O. Box 77777, Huntsville, AL 35807

Telephone: 256-716-4291 Email: Tom.Boonarkat@nts.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.38

S_{DS} (Design spectral response acceleration at short period, g) = 1.84

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

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 Resonance Summary

Overall dimensions and weight (or range thereof) = See Product Range Summary

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 December 31, 2025

Signature: Date: July 19, 2021

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = 1.84 z/h = 1

Condition of Approval (if applicable):

Powering Business Worldwide

Certified Product Range Summary
MV Motor Control[10]
Rigid Floor Mounted

Model	Description	Primary Voltage Class (kV)	Mounting	Enclosure Dimensions[7] (in.)			Weight (lbs.)	Maximum or As Tested C.G. Height (in.)	S_{DS} (g)	F_p/W_p	Notes	UUT Status
				Width	Depth	Height						
Ampgard	200A One High - Full Voltage Non-Reversing (FVNR)	15	Stand Alone	36	30	80-104	1170	37.5	1.84	1.38	1,2,9	Extrapolated
Ampgard	400A One High - Full Voltage Non-Reversing (FVNR)	7.2		36	30	80-104	930	43.3			1,2,9	Extrapolated
Ampgard	800A One High - Full Voltage Non-Reversing (FVNR)	7.2		36	30	80-104	1015	47.5			1,2,9	Extrapolated
XL12029-2	600A Load Break Switch	7.2/15		36.75	34.5	95.5	1084	58.0			1,2	UUT 17
XL12029-3	400A Reduced Voltage - Solid State	7.2	Ganged	36.25	34.5	95.75	1766	38.0	1.84	1.38	1,2	UUT 26a
XL08028	Incoming Line Section	7.2		36	36	104	750	56.8			2,9	UUT 3b
XL08028	400A Two High - Full Voltage Non-Reversing (FVNR)	7.2		36	36	104	1800	50.0			2,9	UUT 3a
XL12029-3	400A Reduced Voltage - Autotransformer	7.2		36.25	34.5	95.75	2559	38.0			1,2,6	UUT 26c
XL12029-3	400A Reduced Voltage - Autotransformer	7.2		36	34.5	95.75	3055	34.0			1,2,6	UUT 26b
XL08029	400A Two High - Full Voltage Non-Reversing (FVNR), Arc-Resistant	7.2		37.25	55	123.5	2343	53.0			1,2	UUT 4a
XL08029	Incoming Line Section, Arc-Resistant	7.2		25.25	55	123.5	987	64.7			1,2	UUT 4b
XL08027	800A Reduced Voltage - Solid State Starter	7.2		36	53	92	1295	50.5			1,2	UUT 1c
XL08027	800A Reduced Voltage Starter Contator and Bypass	7.2		36	53	92	1200	50.5			1,2	UUT 1b
XL08027	400A Two High - Full Voltage Non-Reversing (FVNR)	7.2		36	53	92	1800	50.0			1,2	UUT 1a

1 NEMA Type 1 enclosure.
2 Mild carbon steel sheet metal construction
6 Open core and coil construction,
7 Nominal Dimensions (does not include extraneous hardware or operator extension)
9 NEMA Type 3R Enclosure, Common force resisting system in NEMA 1 construction
10 Manufactured by Eaton

Powering Business Worldwide

Certified Sub-Component Summary
Autotransformers (Copper Windings)

System Voltage (Vac)	Frequency (Hz)	Locked Rotor Current (Amperes)	Comments	Part-Number	Width (in.)	Height (in.)	Depth (in.)	Max Weight (lbs.)	Manufacturer	UUT Status
3300	50	[132,167]	A 146Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A146P3506580	24.89	18.89	18.00	462	Eaton	Extrapolated
4160	50	[134,173]	A 151Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A151R3506580	24.89	18.89	18.00	462	Eaton	Extrapolated
2400	60	[140,180]	A 156Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A156A3506580	24.89	18.89	18.00	466	Eaton	Extrapolated
3300	60	[132,167]	A 146Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A146C3506580	24.89	18.89	18.00	466	Eaton	Extrapolated
3300	50	[168,218]	A 190Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A190P3506580	24.89	18.89	18.00	467	Eaton	Extrapolated
4160	50	[174,224]	A 195Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A195R3506580	24.89	18.89	18.00	467	Eaton	Extrapolated
2400	60	[181,230]	A 202Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A202A3506580	24.89	18.89	18.00	471	Eaton	Extrapolated
3300	60	[168,218]	A 190Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A190C3506580	24.89	18.89	18.00	471	Eaton	Extrapolated
4160	60	[174,224]	A 195Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A195E3506580	24.89	18.89	18.00	471	Eaton	Extrapolated
3300	50	[219,283]	A 246Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A246P3506580	24.89	18.89	18.00	475	Eaton	Extrapolated
4160	50	[225,291]	A 253Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A253R3506580	24.89	18.89	18.00	475	Eaton	Extrapolated
2400	60	[231,300]	A 262Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A262A3506580	24.89	18.89	18.00	480	Eaton	Extrapolated
3300	60	[219,283]	A 246Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A246C3506580	24.89	18.89	18.00	480	Eaton	Extrapolated
4160	60	[225,291]	A 253Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A253E3506580	24.89	18.89	18.00	480	Eaton	Extrapolated
3300	50	[284,367]	A 320Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A320P3506580	24.89	18.89	18.00	501	Eaton	Extrapolated
4160	50	[292,377]	A 328Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A328R3506580	24.89	18.89	18.00	501	Eaton	Extrapolated
6600	60	[142,183]	A 160Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A160K3506580	24.89	18.89	18.00	514	Eaton	Extrapolated
2400	60	[301,389]	A 339Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A339A3506580	24.89	18.89	18.00	515	Eaton	Extrapolated
3300	60	[284,367]	A 320Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A320C3506580	24.89	18.89	18.00	515	Eaton	Extrapolated
4160	60	[292,377]	A 328Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A328E3506580	24.89	18.89	18.00	515	Eaton	Extrapolated
6900	60	[136,175]	A 153Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A153L3506580	24.89	18.89	18.00	522	Eaton	Extrapolated
6900	60	[228,296]	A 257Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A257L3506580	24.89	18.89	18.00	530	Eaton	Extrapolated
6600	60	[176,227]	A 198Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A198L3506580	24.89	18.89	18.00	532	Eaton	Extrapolated
6900	60	[184,237]	A 207Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A207K3506580	24.89	18.89	18.00	542	Eaton	Extrapolated
6600	50	[142,183]	A 160Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A160W3506580	24.89	18.89	18.00	542	Eaton	Extrapolated
6900	50	[136,175]	A 153Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A153X3506580	24.89	18.89	18.00	542	Eaton	Extrapolated
6600	60	[238,309]	A 269Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A269K3506580	24.89	18.89	18.00	552	Eaton	Extrapolated
3300	50	[368,475]	A 414Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A414P3506580	24.89	18.89	18.00	561	Eaton	Extrapolated
4160	50	[378,491]	A 427Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A427R3506580	24.89	18.89	18.00	561	Eaton	Extrapolated
2400	60	[390,505]	A 440Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A440A3506580	24.89	18.89	18.00	569	Eaton	Extrapolated
3300	60	[368,475]	A 414Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A414C3506580	24.89	18.89	18.00	569	Eaton	Extrapolated
4160	60	[378,491]	A 427Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A427E3506580	24.89	18.89	18.00	569	Eaton	Extrapolated
6600	50	[184,237]	A 207Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A207W3506580	24.89	18.89	18.00	574	Eaton	Extrapolated
6900	50	[176,227]	A 198Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A198X3506580	24.89	18.89	18.00	574	Eaton	Extrapolated
3300	50	[476,619]	A 538Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A538P3506580	24.89	18.89	18.00	599	Eaton	Extrapolated
4160	50	[492,638]	A 555Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A555R3506580	24.89	18.89	18.00	599	Eaton	Extrapolated
6600	50	[238,309]	A 269Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A269W3506580	24.89	18.89	18.00	599	Eaton	Extrapolated
6900	50	[228,296]	A 257Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A257X3506580	24.89	18.89	18.00	599	Eaton	Extrapolated
6000	50	[262,340]	A 296Avg LRA 6000v 50hz 3 coil 50,65,80% taps	A296U3506580	24.89	18.89	18.00	904	Eaton	Extrapolated
6900	60	[297,384]	A 334Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A334L3506580	24.89	18.89	18.00	914	Eaton	Extrapolated
6600	60	[310,402]	A 349Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A349K3506580	24.89	18.89	18.00	916	Eaton	Extrapolated
2400	60	[506,654]	A 570Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A570A3506580	24.89	18.89	18.00	918	Eaton	Extrapolated
3300	60	[476,619]	A 538Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A538C3506580	24.89	18.89	18.00	918	Eaton	Extrapolated
4160	60	[492,638]	A 555Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A555E3506580	24.89	18.89	18.00	918	Eaton	Extrapolated
6000	60	[341,442]	A 384Avg LRA 6000v 60hz 3 coil 50,65,80% taps	A384H3506580	24.89	18.89	18.00	918	Eaton	Extrapolated
6600	50	[310,402]	A 349Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A349W3506580	24.89	18.89	18.00	942	Eaton	Extrapolated
6900	50	[297,384]	A 334Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A334X3506580	24.89	18.89	18.00	942	Eaton	Extrapolated

continued on next page

Powering Business Worldwide

Certified Sub-Component Summary
Autotransformers (Copper Windings)

System Voltage (Vac)	Frequency (Hz)	Locked Rotor Current (Amperes)	Comments	Part-Number	Width (in.)	Height (in.)	Depth (in.)	Max Weight (lbs.)	Manufacturer	UUT Status
3300	50	[620,804]	A 699Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A699P3506580	24.89	18.89	18.00	943	Eaton	Extrapolated
4160	50	[639,829]	A 721Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A721R3506580	24.89	18.89	18.00	943	Eaton	Extrapolated
2400	60	[655,851]	A 740Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A740A3506580	24.89	18.89	18.00	963	Eaton	Extrapolated
3300	60	[620,804]	A 699Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A699C3506580	24.89	18.89	18.00	963	Eaton	Extrapolated
4160	60	[639,829]	A 721Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A721E3506580	24.89	18.89	18.00	963	Eaton	Extrapolated
6900	60	[385,500]	A 435Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A435L3506580	24.89	18.89	18.00	963	Eaton	Extrapolated
6000	60	[443,575]	A 500Avg LRA 6000v 60hz 3 coil 50,65,80% taps	A500H3506580	24.89	18.89	18.00	965	Eaton	Extrapolated
6600	60	[403,523]	A 454Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A454K3506580	24.89	18.89	18.00	975	Eaton	Extrapolated
6000	50	[443,575]	A 500Avg LRA 6000v 50hz 3 coil 50,65,80% taps	A500U3506580	24.89	18.89	18.00	1007	Eaton	Extrapolated
2400	50	[1107,1438]	A 1250Avg LRA 2400v 50hz 3 coil 50,65,80% taps	A1250M3506580	24.89	18.89	18.00	1008	Eaton	Extrapolated
3300	50	[805,1046]	A 909Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A909P3506580	24.89	18.89	18.00	1010	Eaton	Extrapolated
4160	50	[830,1078]	A 938Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A938R3506580	24.89	18.89	18.00	1010	Eaton	Extrapolated
6600	50	[403,523]	A 454Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A454W3506580	24.89	18.89	18.00	1014	Eaton	Extrapolated
6900	50	[385,500]	A 435Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A435X3506580	24.89	18.89	18.00	1014	Eaton	Extrapolated
4800	60	[720,934]	A 813Avg LRA 4800v 60hz 3 coil 50,65,80% taps	A813F3506580	24.89	18.89	18.00	1026	Eaton	Extrapolated
6300	60	[549,712]	A 619Avg LRA 6300v 60hz 3 coil 50,65,80% taps	A619J3506580	24.89	18.89	18.00	1028	Eaton	Extrapolated
2400	60	[852,1106]	A 962Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A962A3506580	24.89	18.89	18.00	1031	Eaton	Extrapolated
3300	60	[805,1046]	A 909Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A909C3506580	24.89	18.89	18.00	1031	Eaton	Extrapolated
4160	60	[830,1078]	A 938Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A938E3506580	24.89	18.89	18.00	1031	Eaton	Extrapolated
6900	60	[501,650]	A 565Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A565L3506580	24.89	18.89	18.00	1046	Eaton	Extrapolated
6600	60	[524,679]	A 591Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A591K3506580	29.38	26.14	18.00	1301	Eaton	Extrapolated
6300	50	[549,712]	A 619Avg LRA 6300v 50hz 3 coil 50,65,80% taps	A619V3506580	29.38	26.14	18.00	1346	Eaton	Extrapolated
6000	50	[576,747]	A 650Avg LRA 6000v 50hz 3 coil 50,65,80% taps	A650U3506580	29.38	26.14	18.00	1347	Eaton	Extrapolated
3300	50	[1047,1359]	A 1182Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A1182P3506580	29.38	26.14	18.00	1358	Eaton	Extrapolated
4160	50	[1079,1400]	A 1218Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A1218R3506580	29.38	26.14	18.00	1358	Eaton	Extrapolated
6600	50	[524,679]	A 591Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A591W3506580	29.38	26.14	18.00	1358	Eaton	Extrapolated
6900	50	[501,650]	A 565Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A565X3506580	29.38	26.14	18.00	1358	Eaton	Extrapolated
2400	60	[1107,1438]	A 1250Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A1250A3506580	24.89	18.89	18.00	1372	Eaton	Extrapolated
3300	60	[1047,1359]	A 1182Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A1182C3506580	24.89	18.89	18.00	1372	Eaton	Extrapolated
4160	60	[1079,1400]	A 1218Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A1218E3506580	29.38	26.14	18.00	1372	Eaton	Extrapolated
6600	60	[680,882]	A 768Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A768K3506580	29.38	26.14	18.00	1372	Eaton	Extrapolated
6900	60	[651,844]	A 734Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A734L3506580	29.38	26.14	18.00	1384	Eaton	Extrapolated
4800	60	[935,1213]	A 1056Avg LRA 4800v 60hz 3 coil 50,65,80% taps	A1056F3506580	29.38	26.14	18.00	1388	Eaton	Extrapolated
3300	50	[1360,1765]	A 1536Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A1536P3506580	29.38	26.14	18.00	1441	Eaton	Extrapolated
4160	50	[1401,1820]	A 1583Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A1583R3506580	29.38	26.14	18.00	1441	Eaton	Extrapolated
6600	50	[680,882]	A 768Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A768W3506580	29.38	26.14	18.00	1443	Eaton	Extrapolated
6900	50	[651,844]	A 734Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A734X3506580	29.38	26.14	18.00	1443	Eaton	Extrapolated
3000	50	[1496,1941]	A 1689Avg LRA 3000v 50hz 3 coil 50,65,80% taps	A1689N3506580	29.38	26.14	18.00	1447	Eaton	Extrapolated
4800	60	[1214,1578]	A 1372Avg LRA 4800v 60hz 3 coil 50,65,80% taps	A1372F3506580	29.38	26.14	18.00	1480	Eaton	Extrapolated
6900	60	[845,1097]	A 954Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A954L3506580	29.38	26.14	18.00	1483	Eaton	Extrapolated
2400	60	[1439,1869]	A 1626Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A1626A3506580	24.89	18.89	18.00	1486	Eaton	Extrapolated
3300	60	[1360,1765]	A 1536Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A1536C3506580	29.38	26.14	18.00	1486	Eaton	Extrapolated
4160	60	[1401,1820]	A 1583Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A1583E3506580	29.38	26.14	18.00	1486	Eaton	Extrapolated
6600	60	[883,1147]	A 998Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A998K3506580	29.38	26.14	18.00	1721	Eaton	Extrapolated
3300	50	[1766,2295]	A 1996Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A1996P3506580	29.38	26.14	18.00	1782	Eaton	Extrapolated
4160	50	[1821,2366]	A 2058Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A2058R3506580	31.38	26.14	18.00	1782	Eaton	Extrapolated
6600	50	[883,1147]	A 998Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A998W3506580	29.38	26.14	18.00	1784	Eaton	Extrapolated

continued on next page

Powering Business Worldwide

Certified Sub-Component Summary
Autotransformers (Copper Windings)

System Voltage (Vac)	Frequency (Hz)	Locked Rotor Current (Amperes)	Comments	Part-Number	Width (in.)	Height (in.)	Depth (in.)	Max Weight (lbs.)	Manufacturer	UUT Status
6900	50	[845,1097]	A 954Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A954X3506580	29.38	26.14	18.00	1784	Eaton	Extrapolated
3000	50	[1942,2524]	A 2195Avg LRA 3000v 50hz 3 coil 50,65,80% taps	A2195N3506580	31.38	26.14	18.00	1853	Eaton	Extrapolated
6900	60	[1098,1426]	A 1240Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A1240L3506580	31.38	26.14	18.00	1886	Eaton	Extrapolated
2400	60	[1870,2427]	A 2112Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A2112A3506580	29.38	26.14	18.00	1892	Eaton	Extrapolated
3300	60	[1766,2295]	A 1996Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A1996C3506580	29.38	26.14	18.00	1892	Eaton	Extrapolated
4160	60	[1821,2366]	A 2058Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A2058E3506580	31.38	26.14	18.00	1892	Eaton	UUT 26c
6600	60	[1148,1491]	A 1297Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A1297K3506580	31.38	26.14	18.00	1893	Eaton	Interpolated
6600	50	[1148,1491]	A 1297Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A1297W3506580	31.38	26.14	18.00	2007	Eaton	Interpolated
6900	50	[1098,1426]	A 1240Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A1240X3506580	31.38	26.14	18.00	2007	Eaton	Interpolated
6300	50	[1203,1562]	A 1359Avg LRA 6300v 50hz 3 coil 50,65,80% taps	A1359V3506580	31.38	26.14	18.00	2013	Eaton	Interpolated
6000	50	[1263,1640]	A 1427Avg LRA 6000v 50hz 3 coil 50,65,80% taps	A1427U3506580	31.38	26.14	18.00	2017	Eaton	Interpolated
3300	50	[2296,2982]	A 2594Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A2594P3506580	31.38	31.14	18.00	2127	Eaton	Interpolated
4160	50	[2367,3075]	A 2674Avg LRA 4160v 50hz 3 coil 50,65,80% taps	A2674R3506580	31.38	31.14	18.00	2127	Eaton	Interpolated
2400	60	[2428,3156]	A 2744Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A2744A3506580	29.38	26.14	18.00	2184	Eaton	Interpolated
3300	60	[2296,2982]	A 2594Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A2594C3506580	29.38	26.14	18.00	2184	Eaton	Interpolated
4160	60	[2367,3075]	A 2674Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A2674E3506580	31.38	31.14	18.00	2184	Eaton	Interpolated
6900	60	[1427,1854]	A 1612Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A1612L3506580	31.38	31.14	18.00	2196	Eaton	Interpolated
6600	60	[1492,1938]	A 1685Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A1685K3506580	31.38	31.14	18.00	2201	Eaton	Interpolated
3300	50	[2983,3876]	A 3371Avg LRA 3300v 50hz 3 coil 50,65,80% taps	A3371P3506580	31.38	31.14	18.00	2308	Eaton	Interpolated
6000	50	[1641,2132]	A 1854Avg LRA 6000v 50hz 3 coil 50,65,80% taps	A1854U3506580	31.38	31.14	18.00	2323	Eaton	Interpolated
6600	50	[1492,1938]	A 1685Avg LRA 6600v 50hz 3 coil 50,65,80% taps	A1685W3506580	31.38	31.14	18.00	2337	Eaton	Interpolated
6900	50	[1427,1854]	A 1612Avg LRA 6900v 50hz 3 coil 50,65,80% taps	A1612X3506580	31.38	31.14	18.00	2337	Eaton	Interpolated
4800	60	[2666,3464]	A 3013Avg LRA 4800v 60hz 3 coil 50,65,80% taps	A3013F3506580	31.38	31.14	18.00	2385	Eaton	Interpolated
6600	60	[1939,2519]	A 2191Avg LRA 6600v 60hz 3 coil 50,65,80% taps	A2191K3506580	31.38	31.14	18.00	2388	Eaton	Interpolated
6900	60	[1855,2409]	A 2096Avg LRA 6900v 60hz 3 coil 50,65,80% taps	A2096L3506580	31.38	31.14	18.00	2395	Eaton	Interpolated
2400	60	[3157,4101]	A 3567Avg LRA 2400v 60hz 3 coil 50,65,80% taps	A3567A3506580	31.38	26.14	18.00	2525	Eaton	Interpolated
3300	60	[2983,3876]	A 3371Avg LRA 3300v 60hz 3 coil 50,65,80% taps	A3371C3506580	31.38	31.14	18.00	2525	Eaton	Interpolated
4160	60	[3076,3997]	A 3476Avg LRA 4160v 60hz 3 coil 50,65,80% taps	A3476E3506580	31.38	36.14	18.00	2525	Eaton	UUT 26b

Powering Business Worldwide

MV Control (Ampgard)
Certified Sub-Component Summary

Switches									
Model	Type	Size (Amperes)	Voltage	Dimensions			Weight (lbs.)	Manufacturer	UUT Test Status
				Width (in.)	Depth (in.)	Height (in.)			
JMT-4	Non Load Break	400	7.2kV	20	15	12	40	Eaton	UUT 1,3,4,26a
JMT-8		720	7.2kV	20	15	12	40	Eaton	UUT 1
LBS	Load Break	600A	7.2kV	36	30	40	485	Eaton	UUT 17

Fused Contactor (Load Break)								
Model	Size (Amperes)	Maximum Voltage	Dimensions			Weight (lbs.)	Manufacturer	UUT Test Status
			Width (in.)	Depth (in.)	Height (in.)			
SL400	400	7.2kV	18	21	15	60	Eaton	UUT 3,4,26a
SL800	720	7.2kV	18	21	22	100	Eaton	UUT 1

RVSS (Reduced Voltage Solid State) Module								
Model	Size (Amperes)	Maximum Voltage	Dimensions			Weight (lbs.)	Manufacturer	UUT Test Status
			Width (in.)	Depth (in.)	Height (in.)			
MV4S-200	200	7.2kV	29	26	37	375	Motortronics	Extrapolated
MV4S-400	400	7.2kV	29	26	37	375	Motortronics	UUT 26a
MV4S-720	720	7.2kV	36	30	80	1050	Motortronics	UUT 1

Certified Enclosures[1] - MV Control						
Model Number	Enclosure Dimensions (in.)			NEMA Type Ratings	Notes	UUT Test Status
	Width	Depth	Height			
N/A	24.00	30-55	80-123.5	1,3R	2,3	Extrapolated
N/A	25.25	55.00	123.50	1	2,3	4b
N/A	26.00	30-55	80-123.5	1,3R	1,2,3	Interpolated
N/A	36.00	30-55	80-123.5	1,3R	1,2,3	Interpolated
N/A	36.00	53.00	92.00	1	2,3	1a,1b,1c
N/A	36.25	34.50	95.75	1	2,3	26a,26b,26c
N/A	36.00	36.00	104.00	3R	2,3	3a,3b
N/A	37.25	55.00	123.50	1	2,3	4a
N/A	36.75	34.50	95.50	1	1,2,3	17

1 - All enclosures made from carbon steel
2 - Certification applies to a minimum of (1) enclosure
3- Manufactured by Eaton

UUT 1 Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL08027

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1.
800A Copper bus.

Options/Component Summary: 400A Contactor (SL400), 400A Non Load Break Switch (JMT-4)

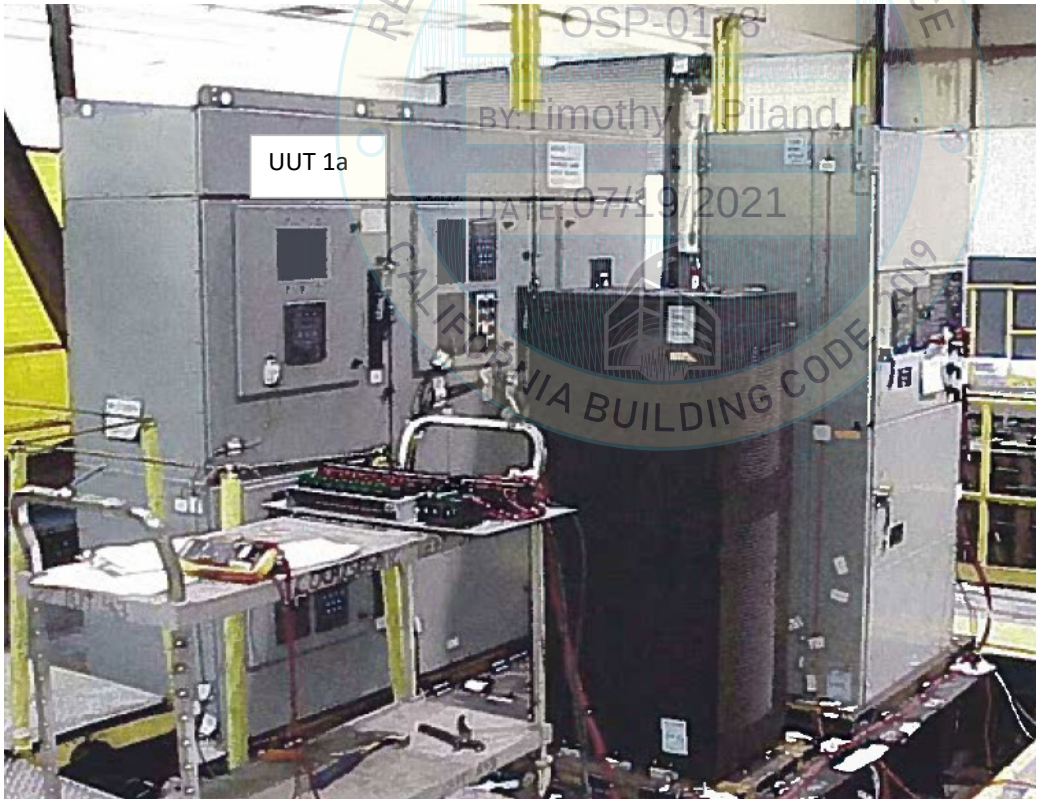
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1800	36	53	92	7.5	7.3	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	50	2.03	1	1.5	3.25	2.44	1.36	0.55

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 4295 lbs.

UUT was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

55906R08-8

UUT 1b Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL08027

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1.
800A Copper bus.

Options/Component Summary: 800A Non load break switch (JMT-8), [2] 720A Contactor (SL800)

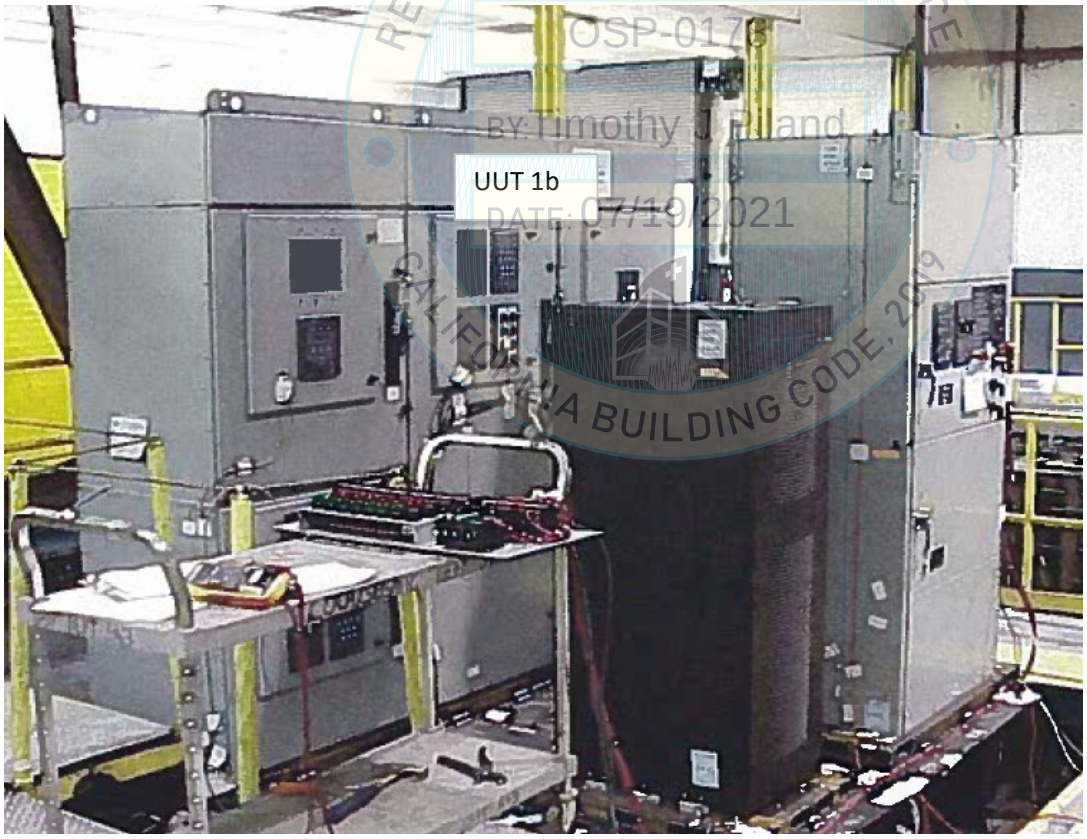
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1200	36	53	92	7.5	7.3	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	50.5	2.03	1	1.5	3.25	2.44	1.36	0.55

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 4295 lbs.

UUT was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

55906R08-8

UUT 1c Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL08027

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1.
800A Copper bus.

Options/Component Summary: 720A Reduced Voltage Solid State Starter (MV4S-720)

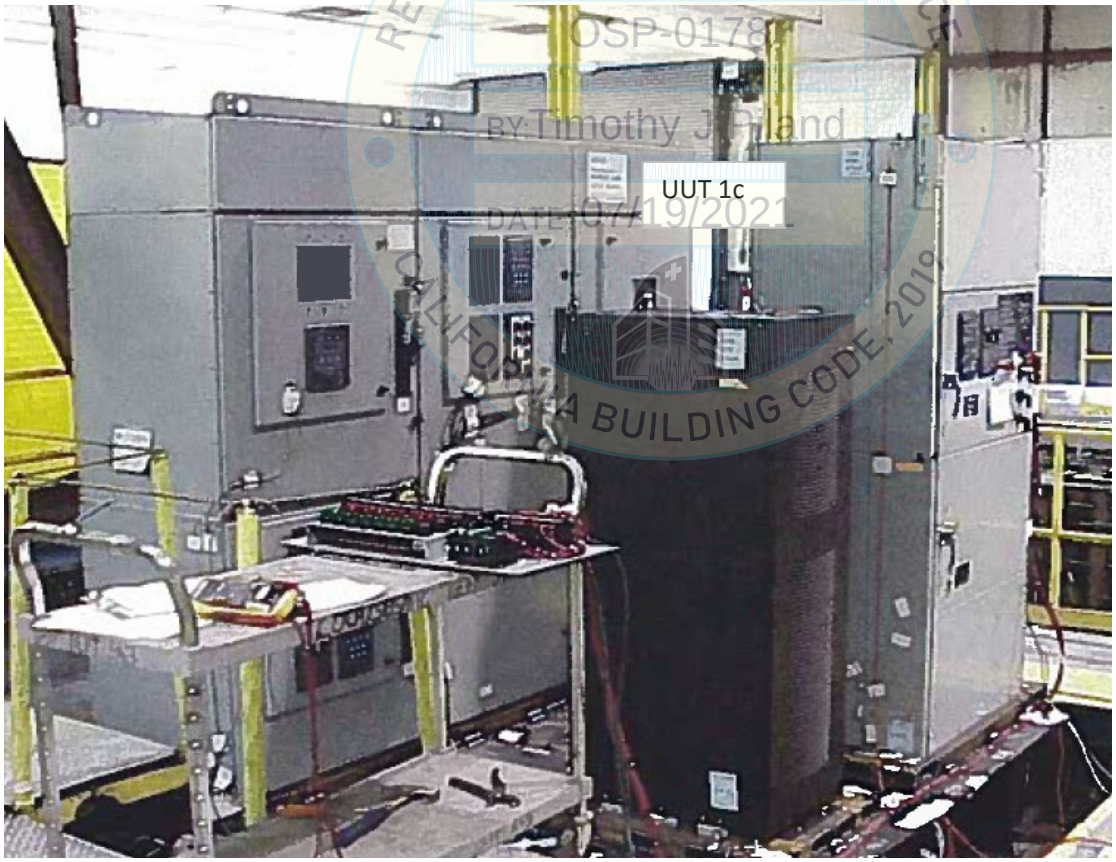
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1295	36	53	92	7.5	7.3	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	50.5	2.03	1	1.5	3.25	2.44	1.36	0.55

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 4295 lbs.

UUT was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

55906R08-8

UUT 3a Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL08028

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 3R. 800A Copper Bus.

Options/Component Summary: 400A Contactor (SL400), 400A Non Load Break Switch (JMT-4).

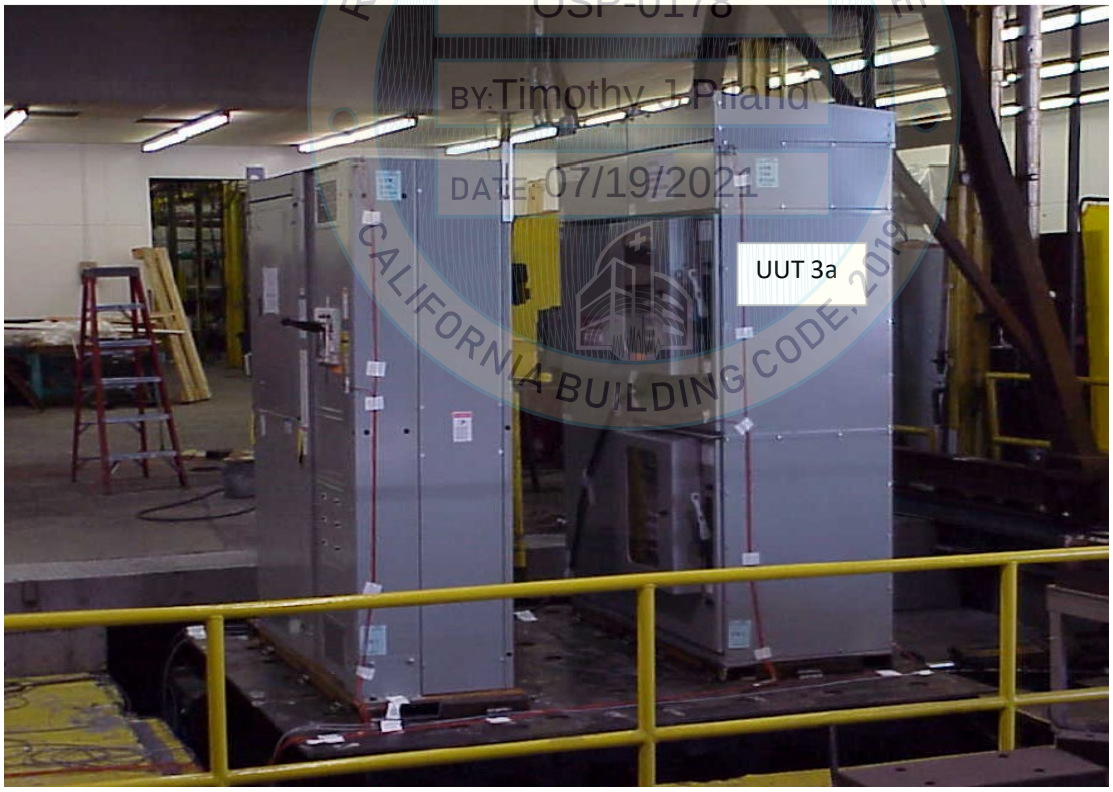
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1800	36	36	104	12.8	8	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	50	1.84	1	1.5	2.94	2.21	1.23	0.50

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 2550 lbs.

UUT was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

55906R08-4B

UUT 3b Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL08028

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 3R. 800A Copper Bus.

Options/Component Summary: N/A, incoming line section, copper bus only.

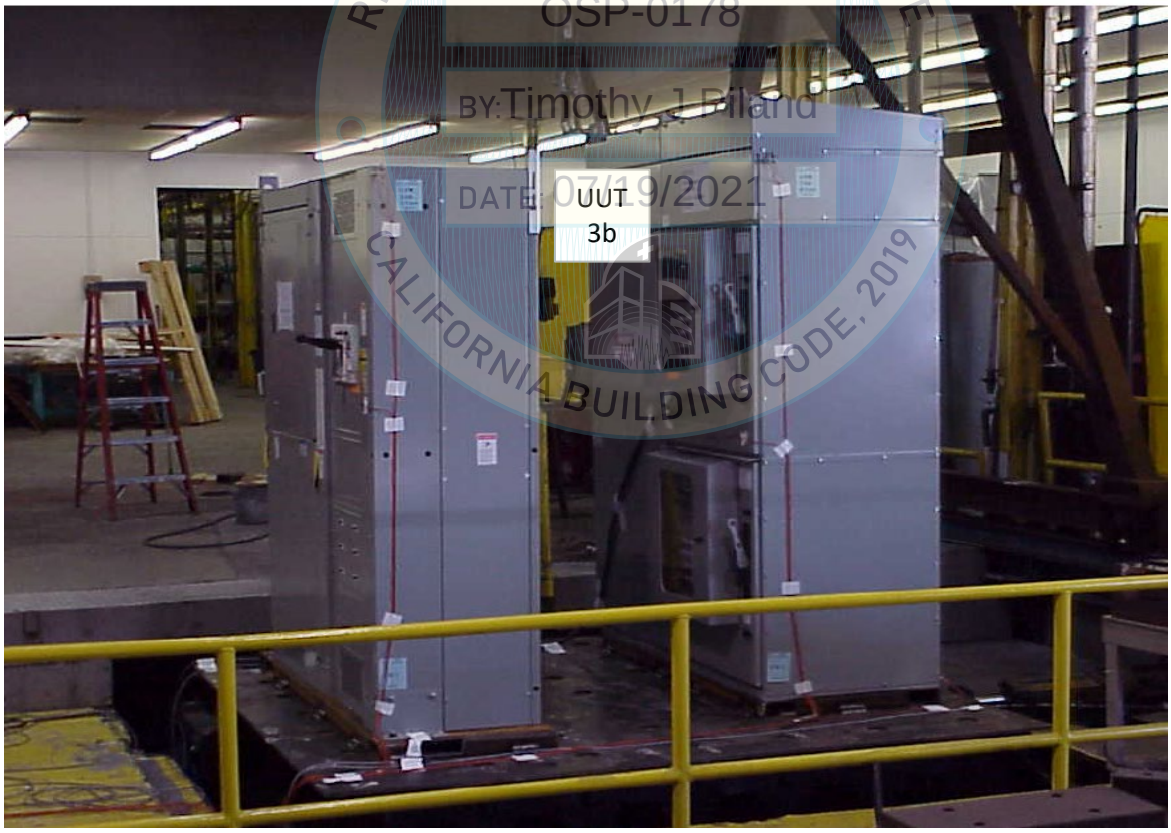
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
750	36	36	104	12.8	8	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	56.8	1.84	1	1.5	2.94	2.21	1.23	0.50

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 2550 lbs.

UUT was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

55906R08-4B

UUT 4a Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL08029

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1 rating. 800A Copper Bus. 400A 2-High FVNR (Full Voltage Non-Reversing) Motor Starter.

Options/Component Summary: Arc Resistant. 400A Contactor (SL400), 400A Non Load Break Switch (JMT-4).

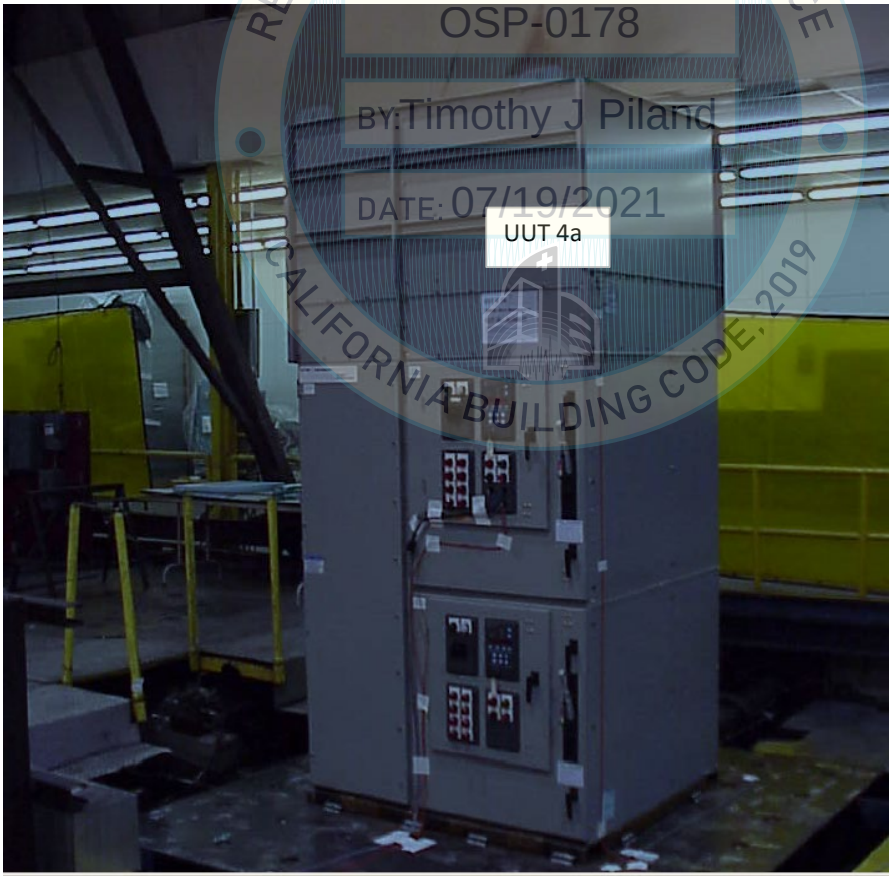
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
2343	37.25	55	123.5	8	7.2	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	53	1.97	1	1.5	3.15	2.36	1.32	0.53

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 3330 lbs.

Unit was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

55906R08-6

UUT 4b Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL08029

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1 rating. 800A Copper Bus.

Options/Component Summary: N/A, incoming line section, copper bus only.

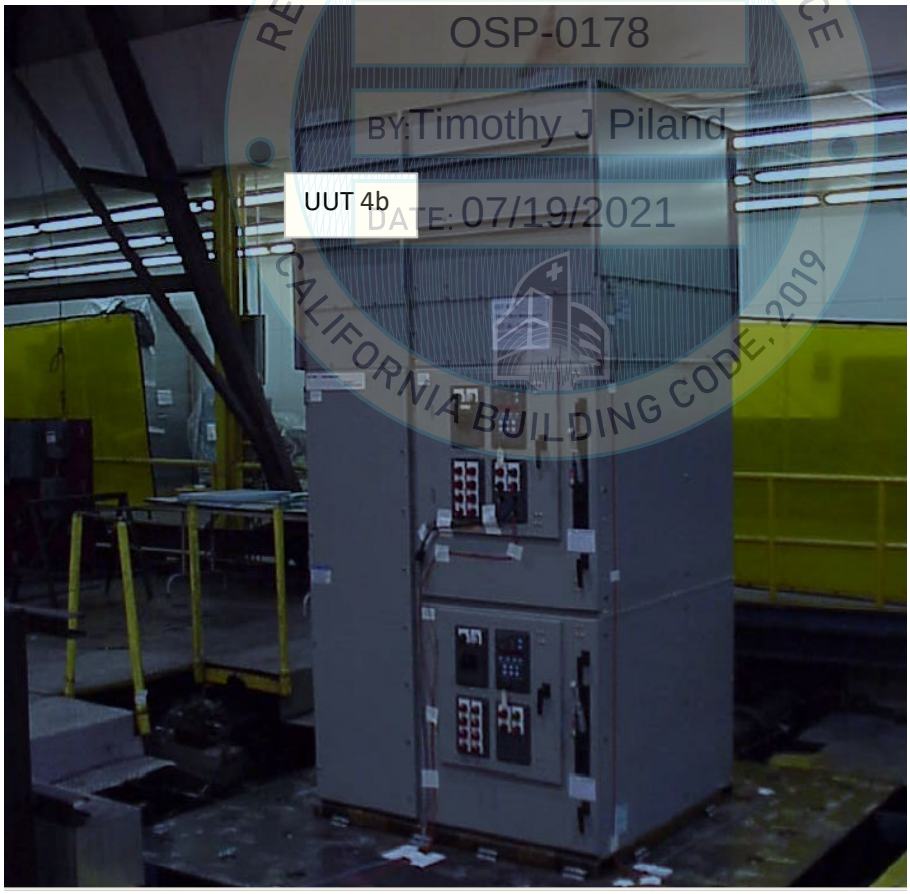
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
987	25.25	55	123.5	8	7.2	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	64.7	1.97	1	1.5	3.15	2.36	1.32	0.53

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 3330 lbs.

Unit was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

55906R08-6

UUT 17 Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL12029-2

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1 rating. 600A Copper Bus

Options/Component Summary: 600A Load Break Switch (LBS)

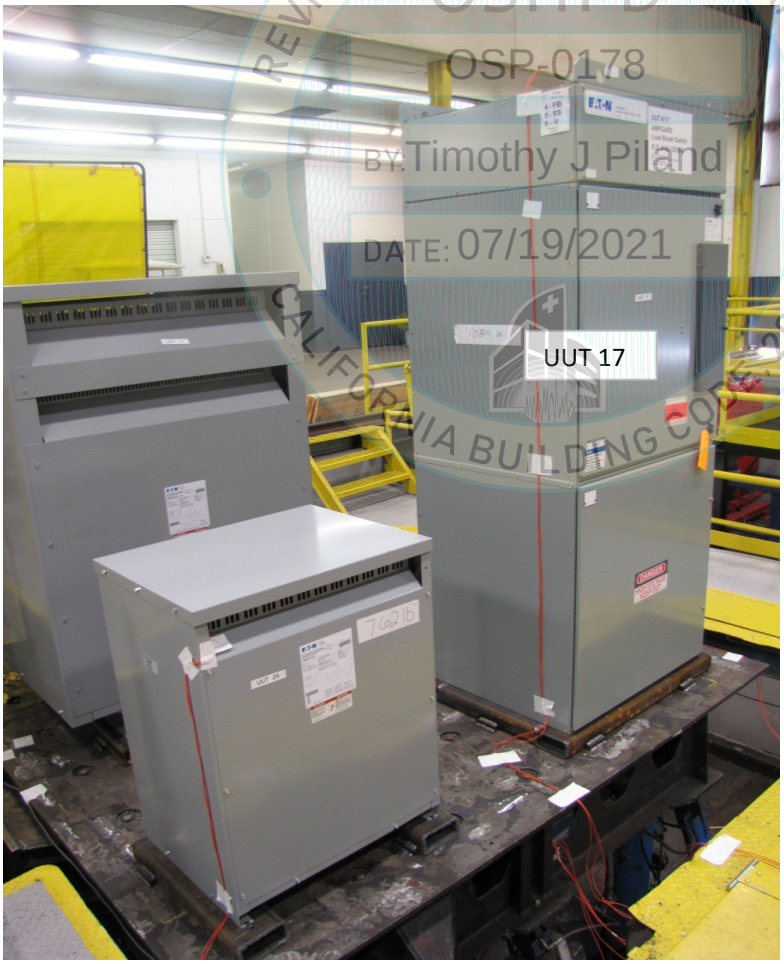
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1084	36.75	34.5	95.5	16	8.1	15

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	58	2.89	1	1.5	4.62	3.47	1.94	0.78

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



UUT was mounted to a rigid frame using (4) 1/2" bolts. The steel frame was welded to the shake table.

70566R12-1

UUT 26a Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL12029-3

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1 rating. 3000A Copper Bus.

Options/Component Summary: 400A RVSS (MV4S-400), 400A Contactor (SL400), Non Load Break Switch (JMT-4)

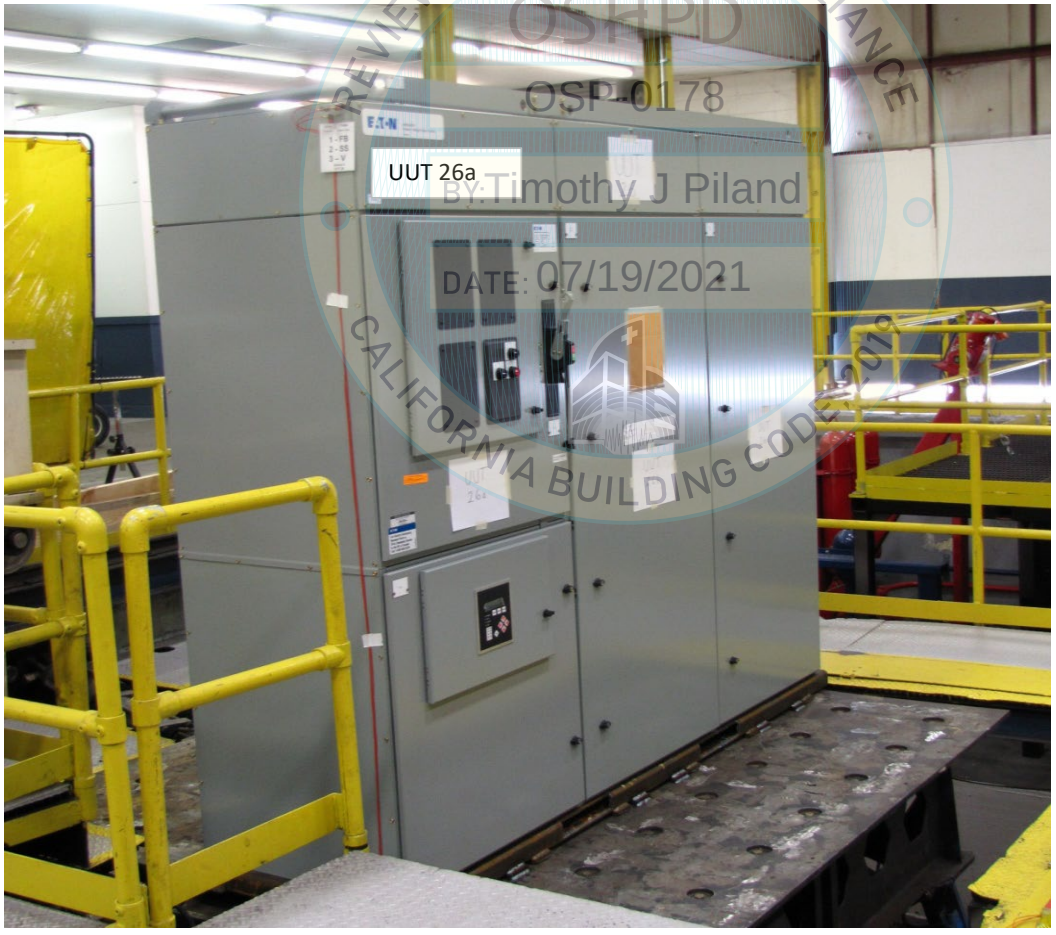
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1766	36.25	34.5	95.75	9.2	7.1	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	38	2.26	1	1.5	3.62	2.71	1.51	0.61

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 7380 lbs.

Unit was mounted to a rigid frame using (12) 1/2" bolts. The steel frame was welded to the shake table.

70566R12-1

UUT 26b Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL12029-3

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1 rating. 3000A Copper Bus. UUT comprised of (3) 36" wide enclosures.

Options/Component Summary: Autotransformer (A3476E3506580)

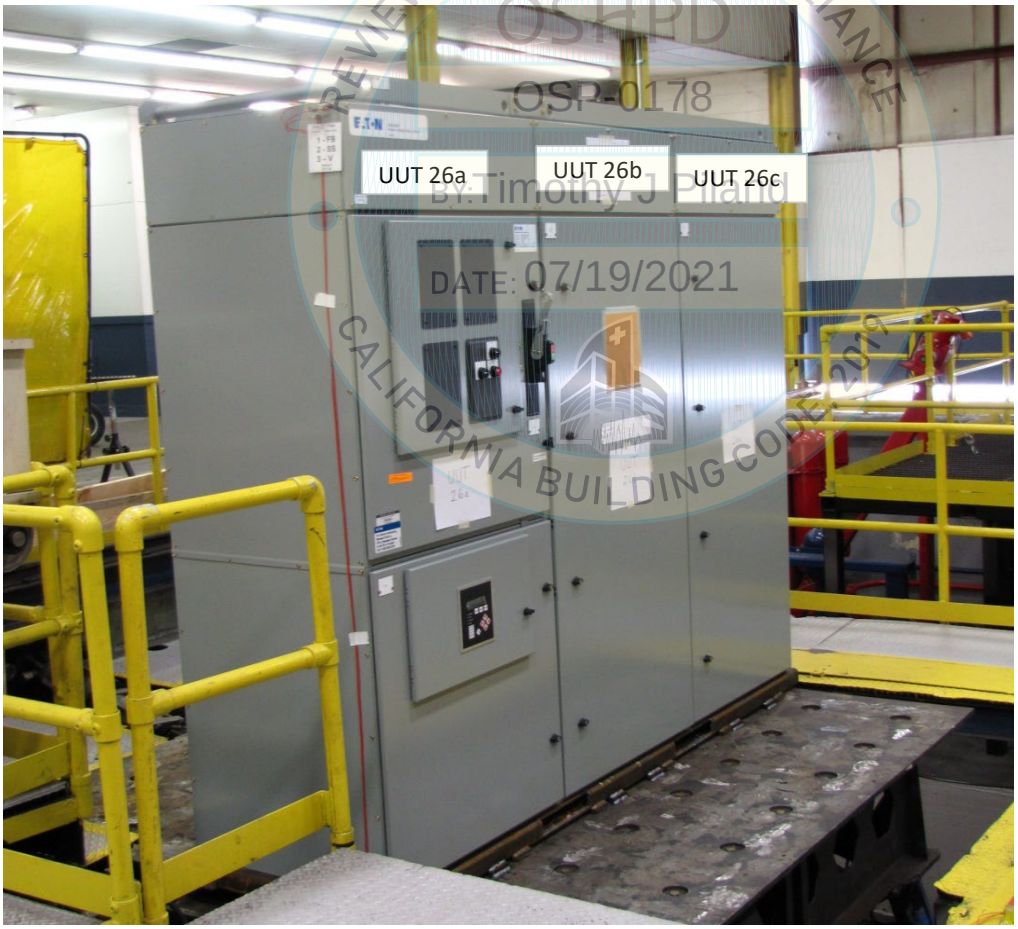
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
3055	36	34.5	95.75	9.2	7.1	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	34	2.26	1	1.5	3.62	2.71	1.51	0.61

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 7380 lbs.

Unit was mounted to a rigid frame using (12) 1/2" bolts. The steel frame was welded to the shake table.

70566R12-1

UUT 26c Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Medium Voltage Control

Model/Number: AMPGARD/XL12029-3

Product Construction Summary: Enclosure is constructed of mild carbon steel, NEMA Type 1 rating. 3000A Copper Bus.

Options/Component Summary: Autotransformer (A2058E3506580)

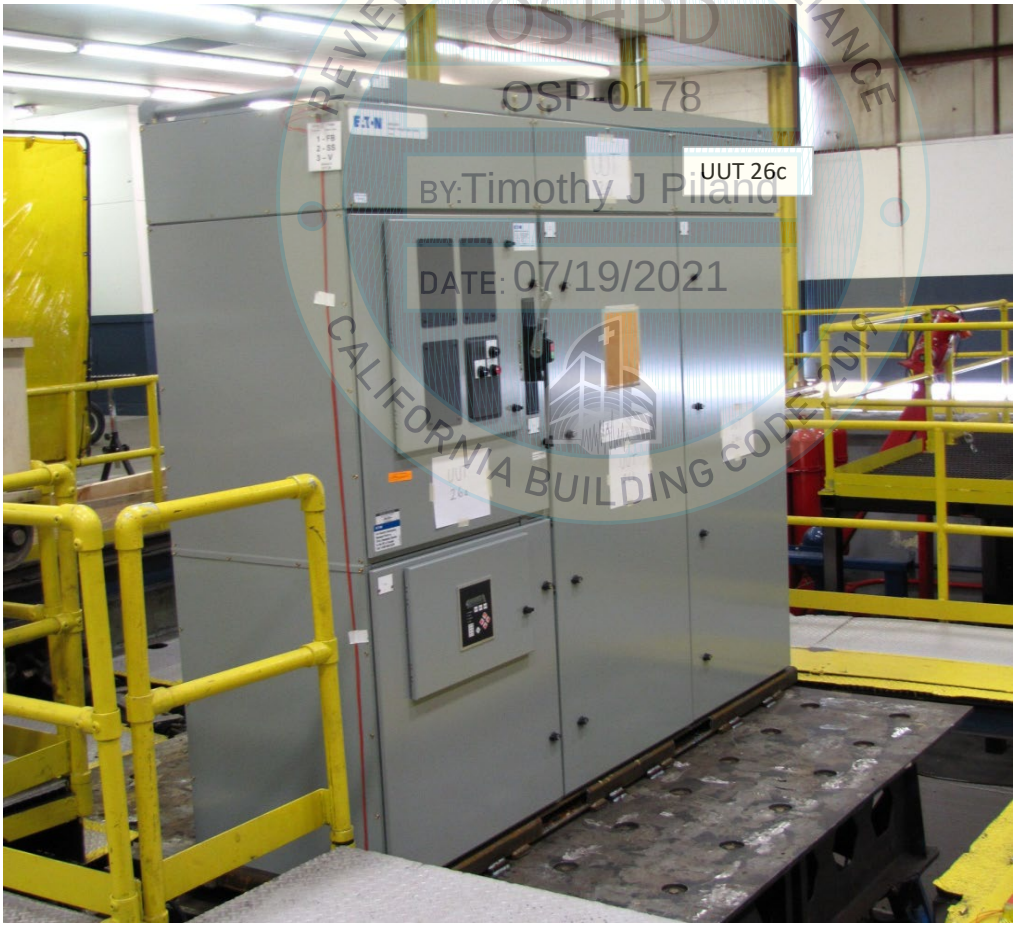
UUT Properties (As Tested)

Weight (lbs.)	Enclosure Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
2559	36.25	34.5	95.75	9.2	7.1	>33

Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	S_{DS} (g)	z/h	I_p	A_{flx-H}	A_{rig-H}	A_{flx-V}	A_{rig-V}
CBC 2019	ICC-ES AC156	38	2.26	1	1.5	3.62	2.71	1.51	0.61

UUT maintained structural integrity and functionality as confirmed in post test inspection and operation checks.



Combined Weight = 7380 lbs.

Unit was mounted to a rigid frame using (12) 1/2" bolts. The steel frame was welded to the shake table.

70566R12-1