



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

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

OFFICE USE ONLY

APPLICATION #: **OSP - 0018 - 10**

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

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: Eaton Corporation

Manufacturer's Technical Representative: Eddie Wilkie

Mailing Address: 175 Vista Blvd, Arden, NC 28704

Telephone: 828-651-0707 Email: eddiwilkie@eaton.com

**Product Information**

Product Name: Magnum DS Switchgear

Product Type: Low Voltage, Metal Enclosed Switchgear

Product Model Number: Various

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

General Description: Low Voltage (600V Maximum), Metal Enclosed Switchgear, 5000A maximum, NEMA 1 and 3R Enclosures, front and rear accessible, 3 and 4 pole. Seismic enhancements made to the test units and modifications to address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid floor mounted and rigid floor/wall mounted.

**Applicant Information**

Applicant Company Name: Eaton Corporation

Contact Person: Eddie Wilkie

Mailing Address: 175 Vista Blvd, Arden, NC 28704

Telephone: 828-651-0707 Email: eddiwilkie@eaton.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant: Eddie Wilkie Date: 1/2/14

Title: Engineering Director Company Name: Eaton Corporation

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dvnamic Needs"





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

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

Company Name: ISAT  
Name: William V. Joerger California License Number: SE4545  
Mailing Address: 1020 Crews Road, Suite 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: Wyle Laboratories  
Contact Name: Dave Bell  
Mailing Address: P.O. Box 77777, Huntsville, AL 35807  
Telephone: 256-716-4229 Email: [david.bell@wyle.com](mailto:david.bell@wyle.com)





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

**Seismic Parameters**

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

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 2.12 (NEMA 1), 1.71 (NEMA 3R)

$S_{DS}$  (Design spectral response acceleration at short period, g) = 2.83 (NEMA 1), 2.28 (NEMA 3R)

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

$R_p$  (Equipment or component response modification factor) = 6.0

$\Omega_0$  (System overstrength factor) = 2.5

$I_p$  (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) = \_\_\_\_\_

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

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

$I_p$  (Importance factor) = 1.5

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

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

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

Tank(s) designed in accordance with ASME BPVC, 2010:  Yes  No

**List of Attachments Supporting Special Seismic Certification**

Test Report(s)  Drawings  Calculations  Manufacturer's Catalog

Other(s) (Please Specify): Product Range Summary

**OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019**

Signature: 

Date: May 27, 2014

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): \_\_\_\_\_



## Certified Product Range Summary

### Magnum DS LV Metal Enclosed Switchgear<sup>2</sup>

Magnum DS LV Metal-Enclosed Indoor Switchgear											
Model/UUT Identifier	Mounting	Section Continuous Current Rating (Amps)	Bus Material	Width (in.)	Depth (in.)	Height (in.)	Maximum Weight (lbs.)	Maximum Tested C.G. (Height) [in.]	S <sub>DS</sub> (g)	NEMA Enclosure Type	UUT
XL13031-001a <sup>1</sup>	Rear Accessible	2000	Copper	19	92	96.5	1433	48.08	2.83	1	8
Magnum DS		2000	Copper	18/22/24/30	54/60/66/72/78/84/90	96	2400		2.83	1	Interpolated
Magnum DS		3200	Copper	18/22/24/30/44	54/60/66/72/78/84/90	96	3000		2.83	1	Interpolated
XL13031-001c <sup>1</sup>		3200	Copper	23	92	96.5	1426		2.83	1	10
Magnum DS		4000	Copper	22/24/30/32/44/60	54/60/66/72/78/84/90	96	4419		2.83	1	Interpolated
Magnum DS		5000	Copper	22/24/30/32/44/60	54/60/66/72/78/84/90	96	4419		2.83	1	Interpolated
XL13031-001b <sup>1</sup>		5000	Copper	60	92	96.5	4419		2.83	1	9
Magnum DS	Front Accessible	2000	Copper	22/30/44	54	96	2200	54.15	2.83	1	Extrapolated
Magnum DS		3200	Copper	22/30/44	54	96	2200		2.83	1	Extrapolated
XL13031-002a <sup>1</sup>		3200	Copper	23	58	117	1437		2.83	1	11
XL13031-007a <sup>1</sup>		3200	Copper	22.5	58.25	99.5	1450		2.83	1	40
XL13031-002b <sup>1</sup>		3200	Copper	22	58	117	998		2.83	1	12
XL13031-007b <sup>1</sup>		3200	Copper	22	58.25	99.5	1007		2.83	1	41
XL13031-002c <sup>1</sup>		3200	Copper	22	58	99.12	1475		2.83	1	13
XL13031-007c <sup>1</sup>		3200	Copper	22.5	58.25	99.5	1488		2.83	1	42
Magnum DS		4000	Copper	22/30/44	54	96	4287		2.83	1	Interpolated
Magnum DS		5000	Copper	22/30/44	54	96	4287		2.83	1	Interpolated
XL13031-002d <sup>1</sup>		5000	Copper	61	58	99.12	4287		2.83	1	14
Magnum DS LV Metal-Enclosed Outdoor Switchgear											
Magnum DS	NEMA 3R	2000	Copper	18	125	111	1800	52.21	2.28	3R	Extrapolated
Magnum DS		2000	Copper	18/22/24/30	125	111	2000		2.28	3R	Extrapolated
Magnum DS		3200	Copper	18/22/24/30/44	125	111	3000		2.28	3R	Extrapolated
XL13031-004b <sup>1</sup>		3200	Copper	30	125.5	111.75	2079		2.28	3R	16
Magnum DS		4000	Copper	22/24/30/32/44	125	111	5000		2.28	3R	Interpolated
XL13031-004a <sup>1</sup>		5000	Copper	52	125.5	111.75	6226		2.28	3R	15

1 - Engineered to order product. Unique identifiers provided for each vertical section.

2 - Manufactured by Eaton.



## Magnum DS Switchgear Certified Enclosures<sup>1,2</sup>

Magnum DS LV Metal-Enclosed Indoor Switchgear					
NEMA Type	Dimensions (in.)			Manufacturer	Test Status
	Width	Depth	Height		
1	19	92	96.5	Eaton	8
1	18	40.2/60/66/72/78/84/90	96	Eaton	Interpolated
1	23	92	96.5	Eaton	10
1	23	58	117	Eaton	11
1	22	58	117	Eaton	12
1	22	58	99.12	Eaton	13
1	22.5	58.25	99.5	Eaton	40,42
1	22	58.25	99.5	Eaton	41
1	22	40.2/60/66/72/78/84/90	96	Eaton	Interpolated
1	30	40.2/60/66/72/78/84/90	96	Eaton	Interpolated
1	32	40.2/60/66/72/78/84/90	96	Eaton	Interpolated
1	44	40.2/60/66/72/78/84/90	96	Eaton	Interpolated
1	60	40.2/60/66/72/78/84/90	96	Eaton	Interpolated
1	61	58	99.12	Eaton	14
1	60	92	96.5	Eaton	9

  

Magnum DS LV Metal-Enclosed Outdoor Switchgear					
3R <sup>3</sup>	18	125	111	Eaton	Extrapolated
3R <sup>3</sup>	22	125.5	111.75	Eaton	16
3R <sup>3</sup>	30	125	111	Eaton	Interpolated
3R <sup>3</sup>	44	125.5	111.75	Eaton	15

1. All enclosures made from carbon steel
2. All enclosure dimensions are nominal, extraneous items such as hardware, devices and handles are not included.
3. Enclosure widths shown are nominal widths of NEMA 1 enclosures. A 3R enclosure adds approximately 8" to the outermost enclosures (only) of lineup of Switchgear. The interior sections are nominal widths as shown.

### Certified Power Circuit Breakers - Magnum DS/DN/SB

Frame Size (Amperes)	Model	Maximum Voltage (Vac)	Dimensions & Weights				Manufacturer	Test Status
			Width (in.)	Depth (in.)	Height (in.)	Weight (lbs.)		
800	MDSC08	600	12.51	20.82	16.76	145	Eaton	Interpolated
800	MDN608	600	12.51	20.82	16.76	130	Eaton	Interpolated
1600	MDN616	600	12.51	20.82	16.76	130	Eaton	Interpolated
2000	MDNC20XEA	600	12.51	20.82	16.76	145	Eaton	8
2000	MDS/MSB	600	16.15	20.82	16.76	145	Eaton	Interpolated
800	MDSC083WEA	600	16.15	20.82	16.76	145	Eaton	15,16
800	MDS/MSB	600	16.15	20.82	16.76	145	Eaton	Interpolated
1600	MDS/MSB	600	16.15	20.82	16.76	145	Eaton	Interpolated
1600	MDS/MSB	600	16.15	20.82	16.76	145	Eaton	Interpolated
2000	MDS/MSB	600	16.15	20.82	16.76	145	Eaton	Interpolated
2500	MDS/MSB	600	16.15	20.82	16.76	175	Eaton	Interpolated
3200	MDSC323WEA	600	16.15	20.82	16.76	175	Eaton	10,11,13,16,40,42
4000	MDS/MSB	600	35.75	20.82	16.76	310	Eaton	Interpolated
5000	MDSC5A4WEA	600	45.25	20.82	16.76	310	Eaton	9,14
5000	MDSC503WEA	600	35.75	20.82	16.76	310	Eaton	15

### Certified Control Power Transformers

Size (kVA) [Pri-Sec. Volt]	Winding Material	Part Number	Width (in.)	Depth (in.)	Height (in.)	Weight (lbs.)	Manufacturer	Test Status
1 [600-120]	Copper	114B738G01	9	7.35	9	30	ITI	Interpolated
1 [480-120]	Copper	114B738G02	9	7.35	9	30	ITI	8,11,40
1 [240-120]	Copper	114B738G04	9	7.35	9	30	ITI	Interpolated
1 [208-120]	Copper	114B738G05	9	7.35	9	30	ITI	Interpolated
2 [600-120]	Copper	114B738G11	9	8.3	9	35	ITI	Interpolated
2 [480-120]	Copper	114B738G12	9	8.3	9	35	ITI	Interpolated
2 [240-120]	Copper	114B738G14	9	8.3	9	35	ITI	Interpolated
2 [208-120]	Copper	114B738G15	9	8.3	9	35	ITI	Interpolated
3 [600-120]	Copper	114B738G21	9	9	9	40	ITI	Interpolated
3 [480-120]	Copper	114B738G22	9	9	9	40	ITI	13,42
3 [240-120]	Copper	114B738G24	9	9	9	40	ITI	Interpolated
3 [208-120]	Copper	114B738G25	9	9	9	40	ITI	Interpolated
5 [600-120]	Copper	114B738G31	9	10.5	9	60	ITI	Interpolated
5 [240-120]	Copper	114B738G34	9	10.5	9	60	ITI	Interpolated
5 [208-120]	Copper	114B738G35	9	10.5	9	60	ITI	Interpolated
5 [480-120]	Copper	114B738G32	9	10.5	9	60	ITI	16
15 [480-120]	Copper	S20N11S15N	19	13.38	10.46	216	EATON	15

### Certified Potential Transformers

Size (VA) [Pri-Sec. Volt]	Winding Material	Part Number	Width (in.)	Depth (in.)	Height (in.)	Weight (lbs.)	Manufacturer	Test Status
150 [480-120]	Copper	4601B05H16	4.75	4.65	10.25	24	ITI	11,40
300 [480-120]	Copper	475-480	4.75	4.38	6.5	12.5	ITI	8,16
750 [480-120]	Copper	450-480	4.75	4.38	6.5	25	ITI	9,15

### Certified Meters

Model	Width (in.)	Depth (in.)	Height (in.)	Weight (lbs.)	Manufacturer	Test Status
PXD-MMG	7.8	2.54	9.02	2	Eaton	9,14,15
PXM2000	4.85	4.97	4.85	2	Eaton	13,42
PXM4000	9.56	8.72	9	9.2	Eaton	Interpolated
PXM6000	9.56	8.72	9	9.2	Eaton	14
PXM8000	9.56	7.72	9	9.2	Eaton	14,15

## Resonance Frequency Summary Magnum DS Switchgear

Report	UUT	Front-Back (Hz)	Side-Side (Hz)	Vertical (Hz)
71152R13	8	9.8	8.5	>33
71152R13	9	9.8	8.5	>33
71152R13	10	9.8	8.5	>33
71152R13	11	7	6.8	20
71152R13	12	7	6.8	20
71152R13	13	7	6.8	20
71152R13	14	7	6.8	21
71152R13	15	6.7	4.8	18
71152R13	16	6.7	4.8	18
71272R13	40	7.6	5.1	26
71272R13	41	7.6	5.1	26
71272R13	42	7.6	5.1	26

## UUT 8 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-001a

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 2000A, copper bus.

Options/Component Summary: Magnum Breaker, 2000A (Model: MDNC203XEA; 1kVA CPT, 480-120 (Part#: 114B738G02); 300VA PT, 480-120 (Part#: 475-480)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1433	19	92	96.5	9.8	8.5	>33

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	47.71	2.83	1	1.5	4.53	3.40	1.90	0.76

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



UUT was mounted to a rigid frame using (6) 1/2" bolts. The steel frame was welded to the shake table.

## UUT 9 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-001b

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 5000A, Copper Bus.

Options/Component Summary: Magnum Breaker, 5000A (Model: MDSC5A4WEA); 750VA PT, 480-120 (Part#: 450-480); Power Xpert Meter (Part#: PXD-MMG)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
4419	60	92	96.5	9.8	8.5	>33

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	48.08	2.83	1	1.5	4.53	3.40	1.90	0.76

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



UUT was mounted to a rigid frame using (6) 1/2" bolts. The steel frame was welded to the shake table.

## UUT 10 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-001c

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 3200A, Copper Bus.

Options/Component Summary: Magnum Breaker, 3200A (Model: MDSC323WEA)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1426	23	92	96.5	9.8	8.5	>33

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	46.3	2.83	1	1.5	4.53	3.40	1.90	0.76

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



UUT was mounted to a rigid frame using (6) 1/2" bolts. The steel frame was welded to the shake table.

## UUT 11 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-002a

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 3200A, Copper Bus, Front Accessible, Arc Resistant.

Options/Component Summary: Magnum Breaker, 3200A (Cat#: MDSC323WEA); 1kVA CPT, 480-120 (Part#: 114B738G02); 150VA VT, 480-120 (Part#: 4601B05H16)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1437	23	58	117	7	6.8	20

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	54.1	2.83	1	1.5	4.53	3.40	1.90	0.76

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.

## UUT 12 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-002b

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 3200A, Copper Bus, Arc Resistant.

Options/Component Summary:

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
998	22	58	117	7	6.8	20

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	53.4	2.83	1	1.5	4.53	3.40	1.90	0.76

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.

## UUT 13 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-002c

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 3200A, Copper Bus, Front Accessible.

Options/Component Summary: Magnum Breaker, 3200A (Model: MDSC323WEA); 3kVA CPT, 480-120 (Part#: 114B738G22); Power Xpert Meter (Part#: PXM2000)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1475	22	58	99.12	7	6.8	20

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	51.2	2.83	1	1.5	4.53	3.40	1.90	0.76

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.

## UUT 14 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-002d

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 5000A, Copper Bus, Front Accessible.

Options/Component Summary: Magnum Breaker, 5000A (Model: MDSC5A4WEA); Power Xpert Meter (Part#: PXM6000); Power Xpert Meter (Part#: PXM8000); Power Xpert Display (Part# PXD-MMG); Power Xpert Meter (Part#: PXD-MMG)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
4287	61	58	99.12	7	6.8	21

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	51.3	2.83	1	1.5	4.53	3.40	1.90	0.76

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.

## UUT 15 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-004a

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 3R enclosure rating. 5000A, Copper Bus.

Options/Component Summary: Magnum Breaker, 800A (Model: MDSC083WEA); Magnum Breaker, 800A (Model: MDSC083WEA); Magnum Breaker, 800A (Model: MDSC083WEA); Magnum Breaker, 5000A (Model: MDSC503WEA); 15kVA CPT, 480-120 (Part #: S20N11S15N); 750VA VT, 480-120 (Part#: 450-480); Power Xpert Meter (Part#: PXM8000); Power Xpert Meter (Part#: PXD-MMG)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
6226	52	125.5	111.75	6.7	4.8	18

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	52.2	2.28	1	1.5	3.65	2.74	1.53	0.62

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



UUT was mounted to a rigid frame using (5) 3/4" bolts. The steel frame was welded to the shake table.

## UUT 16 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-004b

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 3R enclosure rating. 3200A, Copper Bus.

Options/Component Summary: Magnum Breaker, 800A (Model: MDSC083WEA); Magnum Breaker, 800A (Model: MDSC083WEA); Magnum Breaker, 3200A (Model: MDSC323WEA); 5kVA CPT, 480-120 (Part#: 114B738G32); 300VA VT, 480-120 (Part#: 475-480)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
2079	30	125.5	111.75	6.7	4.8	18

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	48.4	2.28	1	1.5	3.65	2.74	1.53	0.62

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



UUT was mounted to a rigid frame using (5) 3/4" bolts. The steel frame was welded to the shake table.

## UUT 40 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-007a

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 3200A, Copper Bus.

Options/Component Summary: Magnum Breaker, 3200A (Model: MDSC323WEA); 1kVA CPT, 480-120 (Part#: 114B738G02); 150VA VT, 480-120 (Part#: 4601B05H16)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1450	22.5	58.25	99.5	7.6	5.1	26

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	51.1	2.83	1	1.5	4.53	3.40	1.90	0.76

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



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

## UUT 41 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-007b

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 3200A, Copper Bus.

Options/Component Summary: Terminals and connecting copper bus for external power cable connections. No internal electrical components.

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1007	22	58.25	99.5	7.6	5.1	26

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	50.9	2.83	1	1.5	4.53	3.40	1.90	0.76

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



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

## UUT 42 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: Magnum DS Low Voltage Switchgear

Model Number: XL13031-007c

Product Construction Summary: Cabinet is constructed of powder-coated carbon steel, NEMA Type 1 enclosure rating. 3200A, Copper Bus.

Options/Component Summary: Magnum Breaker, 3200A (Model: MDSC323WEA); 3kVA CPT, 480-120 (Part#: 114B738G22); Power Xpert Meter (Part#: PXM2000)

### UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
1488	22.5	58.25	99.5	7.6	5.1	26

### Seismic Test Parameters

Building Code	Test Criteria	C.G.-Height (in.)	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	51	2.83	1	1.5	4.53	3.40	1.90	0.76

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



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