

APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)	OFFI APPLICATION #:	OSP – 0431 – 10
OSHPD Special Seismic Certification Preapproval (OSP)		
Type: New Renewal		
Manufacturer Information		
Manufacturer: Eaton		
Manufacturer's Technical Representative: Mark Allen		
Mailing Address: 845 Corporate Circle, Sumter, SC 29154		
Telephone: 803-481-6873 Email: MarkL	Allen@eaton.com	
Product Information		
Product Name: Pow-R-Line C (PRLC) and IFS Switchboards		
Product Type: Low Voltage Distribution Switchboards & Roll-up Ger	perator Termination Bo	
Product Model Number: <u>See Product Range Summary.</u> (List all unique product identification numbers and/or part numbers) General Description: Low Voltage Distribution Switchboards, NEMA		
Mounting Description: Rigid Floor Mounted.		
Applicant Information		
Applicant Company Name: Eaton		
Contact Person: Eddie Wilkie		
Mailing Address: _ 175 Vista Blvd, Arden, NC 28704		
Telephone: 828-651-0707 Email: eddiew	vilkie@eaton.com	
I hereby agree to reimburse the Office of Statewide Health R accordance with the California Administrative Code, 2013. Signature of Applicant:	-	elopment review fees in ate: 4/10/15
Title: Director - Engineering Company Name: Eaton		
"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs" STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY OSH-FD-759 (REV 03/24/15)	MMM	OSHPD Page 1 of 3



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 ☑ ICC-ES AC156 with:											
Other (Please Specify):											
Testing Laboratory											
Company Name:NTS Laboratories											
Contact Name: Tom Boonarkat											
Mailing Address: _ 7800 Hwy. 20 West, Huntsville, AL 35806											
Telephone: 256-837-4111 Email: <u>Tom.Boonarkat@nts.com</u>											

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY OSH-FD-759 (REV 03/24/15)

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 $(F_p/W_p) = 1.45$		
$S_{DS}$ (Design spectral response acceleration at short period, g) =	1.93	
a <sub>p</sub> (In-structure equipment or component amplification factor) <u>2.</u>	5	
R <sub>P</sub> (Equipment or component response modification factor) 6.0		
$\Omega_0$ (System overstrength factor) = 2.0		
$I_p$ (Importance factor) = 1.5		
z/h (Height factor ratio) = <u>1.0</u>		
Equipment or Component Natural Frequencies (Hz) See Reson	ance 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) =		
Cd (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		
Image: Specify   Image	Manufacturer's Catalog	
OSHPD Approval (For Office Use Only) – Approval Expires on I	December 31, 2022	
1.1.1.00		
Signature:		
Print Name: Timothy J. Piland	Title: <u>SSE</u>	
Special Seismic Certification Valid Up to : $S_{DS}(g) = 1.93$		
Condition of Approval (if applicable):		
"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"		USTIFL
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STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY OSH-FD-759 (REV 03/24/15)



### Certified Product Range Summary

# PRLC/IFS Switchboards<sup>1</sup> & Roll-up Generator Termination Boxes

Equipment Type	Model <sup>2</sup>	UUT Identifier	Section Continuous Current Rating (Amps)	Bus Material	Width (in.)	Depth (in.)	Height (in.)	Weight (Ibs.)	S <sub>DS</sub> <sup>3</sup>	Fp/Wp	NEMA Enclosure Type	UUT
		MEDP092014-006	100	Cu	51.25	49.25	90.25	1662			1	24
			400	Cu	20,30,36	24-66	78-90	998			1	Interpolated
Distribution		800	Cu	20,30,36,45,51,54	18-66	78-90	3560			1	Interpolated	
	PRLC & IFS		1000	Cu	20,30,36,45,51,54	18-66	78-90	3560	1.93	1.45	1	Interpolated
Switchboards	PRLUAIFS		1200	Cu	20,30,36,45,51,54	18-66	78-90	3560	1.75	1.45	1	Interpolated
			1600	Cu	20,30,36,45,51,54	18-66	78-90	3560			1	Interpolated
			2000	Cu	30,36,45,51, 54	18-66	78-90	3560			1	Interpolated
		MEDP092014-007	2000	Cu	54.25	73.25	90.25	3560			1	25
Roll-up		MEDP092014-001	800	Cu	37.62	30.5	78.75	494			3R	20
Generator			800	Cu	36, 45	24	78	494			3R	Interpolated
Termination	GTB		1200	Cu	36, 45	24	78	539	1.93	1.45	3R	Interpolated
Boxes		1600	Cu	36, 45	24	78	584	1.73	1.40	3R	Interpolated	
DOVE2	POXes		2000	Cu	36, 45	24	78	674			3R	Interpolated
		MEDP092014-002	2000	Cu	46.88	30.5	78.75	674			3R	21

Manufactured by Eaton
Engineered to order product. Unique identifiers provided for each vertical section.



### PRLC & IFS Switchboards & Roll-up Generator Termination Boxes Certified Subcomponents: Enclosures<sup>1,2</sup>

	NEMA	Enclosure	D	imensions (inch	es)	Weight			
Model		Width	Depth	Height	(lbs.)	S <sub>DS</sub>	$F_p/W_p$	Test Status	
	1	Floor	20.00	18-66	78-90	998			Extrapolated
	1	Floor	30.00	18-66	78-90	998		1.45	Extrapolated
	1	Floor	36.00	18-66	78-90	998			Extrapolated
PRLC/IFS	1	Floor	45.00	18-66	78-90	1510	1.93		Extrapolated
	1	Floor	51.00	18-66	78-90	1662			Extrapolated
	1	Floor	51.25	49.25	90.25	1662			UUT 24
	1	Floor	54.25	73.25	90.25	3560			UUT 25
	3R	Floor	36.00	24.00	78.00	494			Extrapolated
GTB	3R	Floor	37.62	30.50	78.75	494	1.93	1 /5	UUT 20
GID	3R	Floor	45.00	24.00	78.00	674		1.45	Interpolated
	3R	Floor	46.88	30.50	78.75	674			UUT 21

1. All enclosures manufactured by Eaton

2. All enclosures made from powder coated, carbon steel.



### PRLC & IFS Switchboards

#### Certified Subcomponents: Bypass/Isolation Transfer Switch

Frame Size	CAT Model #	Zenith Model # <sup>2</sup>	Continuous Current Rating	Poles	Weight (lbs.)	Manufacturer <sup>1</sup>	Test Status	S <sub>DS</sub> (g)	F <sub>p</sub> /W <sub>p</sub>
64B	CBTECT	ZBTSCT-Z2C	100	4	1662	Zenith	UUT 24	1.93	1.45
64B	CBTE, CBTEDT,	ZBTS00, ZBTSDT,	100-1200	3 & 4	1662	Zenith	Interpolated	1.93	1.45
65B	CBTECT	ZBTSCT-Z2C, -Z2O, - Z2D	1600-2000	3 & 4	3360	Zenith	Interpolated	1.93	1.45
65B	CBTECT	ZBTSCT-Z2C	2000	4	3360	Zenith	UUT 25	1.93	1.45

1. Branded for Caterpillar (CAT)

#### 2. Suffix Definition

- Z20	Open transition	MX350
- Z2D	Delay transition	MX350
- Z2C	Closed transition	MX350



### PRLC & IFS Switchboards & Roll-up Generator Termination Boxes

Report	UUT	Front to Back (Hz)	Side to Side (Hz)	Vertical (Hz)
32162R14	20	8.5	8.5	18
32162R14	21	8.7	8.8	16.5
32162R14	24	8.5	7.5	14
32162R14	25	8.5	10.5	8.5

### **Resonant Frequency Summary**

## UUT 20 (Unit Under Test) Summary Sheet

Manufacturer: Eaton

Model Number: MEDP092014-001 (PRLC/IFS)

Product Construction Summary:

Cabinet is constructed of powder coated coated carbon steel, NEMA 3R rating.

Options/Component Summary: N/A

UUT Properties (As Tested)											
at (lbc.)	Dim	ensions (inc	:hes)		Lowest N	atural Frequ	iency (Hz)				
it (ibs.)	Width	Depth	Height	Front-Back		Side	-Side	Vertical			
.94	37.62	30.50	78.75	8.5		8.5		18			
Seismic Test Parameters											
Test Criteria	C.G Height (in.)	Sds (g)	z/h	lp	Aflx-H	Arig-H	Aflx-V	Arig-V			
2012 ICC- ES AC156	50.25	1.93	1	1.5	3.09	2.316	1.29	0.52			
	Criteria 2012 ICC-	Test Criteria 2012 ICC- 50 25	nt (Ibs.) Dimensions (inc Width Depth 94 37.62 30.50 Test C.G Height Sds (g) (in.) 2012 ICC- 50.25 1.93	Dimensions (inches)WidthDepthHeight9437.6230.5078.75Seismic TestTestC.GSds (g)z/hCriteria(in.)2012 ICC-50.251.931	Dimensions (inches)WidthDepthHeightFront9437.6230.5078.758Seismic Test ParametersTestC.G HeightSds (g)z/hIp2012 ICC-50.251.9311.5	Dimensions (inches)Lowest NWidthDepthHeightFront-Back9437.6230.5078.758.5Seismic Test ParametersC.G Height (in.)2012 ICC-50.251.9311.53.09	Dimensions (inches)Lowest Natural FrequenciesWidthDepthHeightFront-BackSide9437.6230.5078.758.58Seismic Test ParametersC.G Height (in.)Sds (g)z/hIpAflx-HArig-H2012 ICC-50.251.9311.53.092.316	Dimensions (inches)Lowest Natural Frequency (Hz)WidthDepthHeightFront-BackSide-Side9437.6230.5078.758.58.5Seismic Test ParametersTest CriteriaC.G Height (in.)Sds (g)z/hIpAflx-HArig-HAflx-V2012 ICC-50.251.9311.53.092.3161.29			

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



UUT 20 was mounted to a rigid base with (8) 1/2" bolts (Grade 5). The steel frame (carbon steel) was welded to the shake table.

# UUT 21 (Unit Under Test) Summary Sheet

Manufacturer: Eaton

Model Number: MEDP092014-002 (PRLC/IFS)

Product Construction Summary:

Cabinet is constructed of electro-coated carbon steel, NEMA 3R rating.

Options/Component Summary: N/A

UUT Properties (As Tested)											
Waight (lbs.)		ensions (inc	hes)	Lowest Natural Frequency (Hz)							
it (IDS.)	Width	Depth	Height	Front-Back		Side	-Side	Vertical			
74	46.88	30.5	78.75	8.7 8.8		.8	16.5				
Seismic Test Parameters											
Test Criteria	C.G Height (in.)	Sds (g)	z/h	lp	Aflx-H	Arig-H	Aflx-V	Arig-V			
2012 ICC- ES AC156	51.5	1.93	1	1.5	3.09	2.32	1.29	0.52			
	Criteria 2012 ICC-	Test Criteria 2012 ICC- 51 5	t (Ibs.) Dimensions (inc Width Depth 74 46.88 30.5 Test C.G Height Criteria (in.) 2012 ICC- 51.5 1.93	Dimensions (inches)Dimensions (inches)WidthDepthHeight7446.8830.578.75Seismic TestC.GTestC.GHeightSds (g)z/h2012 ICC-51.51.931	Dimensions (inches)Dimensions (inches)WidthDepthHeight7446.8830.578.758Seismic Test ParametersTestC.G HeightSds (g)z/hIp2012 ICC-51.51.9311.5	Dimensions (inches)Lowest NDimensions (inches)Lowest NWidthDepthHeightFront-Back7446.8830.578.758.7Seismic Test ParametersC.G Height CriteriaC.G Height (in.)Sds (g)z/hIpAflx-H2012 ICC-51.51.9311.53.09	Dimensions (inches)Lowest Natural FrequenciesWidthDepthHeightFront-BackSide7446.8830.578.758.78Seismic Test ParametersC.G Height (in.)Sds (g)z/hIpAflx-HArig-H2012 ICC-51.51.9311.53.092.32	Dimensions (inches)Lowest Natural Frequency (Hz)MidthDepthHeightFront-BackSide-Side7446.8830.578.758.78.8Seismic Test ParametersTest CriteriaC.G HeightSds (g)Z/hIpAflx-HArig-HAflx-V2012 ICC-51.51.9311.53.092.321.29			

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



UUT 21 was mounted to a rigid base with (8) 1/2" bolts (Grade 5). The steel frame (carbon steel) was welded to the shake table.

### UUT 24 (Unit Under Test) Summary Sheet

Manufacturer: Eaton

Model Number: MEDP092014-006 (PRLC/IFS)

Product Construction Summary:

Cabinet is constructed of electro-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Bypass/Isolation Transfer Switch, 100A, Model CBTECT

UUT Properties (As Tested)											
(lbc)	Dim	ensions (inc	hes)		Lowest N	atural Frequ	iency (Hz)				
(ibs.)	Width	Depth	Height	Front	-Back	Side	-Side	Vertical			
52	51.25	49.25	90.25	8.5		7	.5	14			
Seismic Test Parameters											
Test Criteria	C.G Height (in.)	Sds (g)	z/h	lp	Aflx-H	Arig-H	Aflx-V	Arig-V			
2012 ICC- ES AC156	42.3	1.93	1	1.5	3.09	2.32	1.29	0.52			
	Test Criteria 2012 ICC-	Width5251.25Test CriteriaC.G Height (in.)2012 ICC- 42 3	Dimensions (incUidthDepth0251.2549.250251.2549.250304040404040504	Dimensions (inches)UidthDepthHeight5251.2549.2590.2551.2549.2590.25Seismic TestTestC.G Height (in.)Sds (g)z/h2012 ICC-42.31.931	Dimensions (inches)UidthDepthHeightFront5251.2549.2590.258Seismic Test ParametersTestC.G HeightSds (g)z/hIp2012 ICC-42.31.9311.5	Dimensions (inches)Lowest Na(lbs.)Dimensions (inches)Lowest NaWidthDepthHeightFront-Back5251.2549.2590.258.5Seismic Test ParametersC.G Height (in.)2012 ICC-42.31.9311.52012 ICC-42.31.9311.53.09	Dimensions (inches)Lowest Natural FrequenciesWidthDepthHeightFront-BackSide5251.2549.2590.258.57Seismic Test ParametersTest CriteriaC.G Height (in.)Sds (g)z/hIpAflx-HArig-H2012 ICC-42.31.9311.53.092.32	Lowest Natural Frequency (Hz)Ubs.)Dimensions (inches)Lowest Natural Frequency (Hz)WidthDepthHeightFront-BackSide-Side5251.2549.2590.258.57.5Seismic Test ParametersTest CriteriaC.G Height (in.)Sds (g)Z/hIpAflx-HArig-HAflx-V2012 ICC-42.31.9311.53.092.321.29			

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



UUT 24 was mounted to a rigid base with (4) 1/2" bolts (Grade 5). The steel frame (carbon steel) was welded to the shake table.

### UUT 25 (Unit Under Test) Summary Sheet

Manufacturer: Eaton

Model Number: MEDP092014-007 (PRLC/IFS)

Product Construction Summary:

Cabinet is constructed of electro-coated carbon steel, NEMA 1 rating.

Options/Component Summary: Bypass/Isolation Transfer Switch, 2000A, Model CBTECT

UUT Properties (As Tested)											
Waight (lbc)		ensions (inc	:hes)		Lowest Na	atural Frequ	iency (Hz)				
it (ibs.)	Width	Depth	Height	Front-Back		Side	-Side	Vertical			
560	54.25	73.25	90.25	8.5		10	).5	8.5			
Seismic Test Parameters											
Test Criteria	C.G Height (in.)	Sds (g)	z/h	lp	Aflx-H	Arig-H	Aflx-V	Arig-V			
2012 ICC- ES AC156	47	1.93	1	1.5	3.09	2.32	1.29	0.52			
	Criteria 2012 ICC-	Test Criteria 2012 ICC- 47	t (Ibs.) Dimensions (inc Width Depth 560 54.25 73.25 Test C.G Height Sds (g) (in.) 2012 ICC- 47 1.93	Dimensions (inches)WidthDepthHeight56054.2573.2590.25Seismic TestTestC.GSds (g)z/hCriteria(in.)1.931	Dimensions (inches)WidthDepthHeightFront56054.2573.2590.258Seismic Test ParametersTestC.G HeightSds (g)z/hIp2012 ICC-471.9311.5	Dimensions (inches)Lowest NaWidthDepthHeightFront-Back56054.2573.2590.258.5Seismic Test ParametersC.G Height (in.)2012 ICC-471.9311.53.09	Dimensions (inches)Lowest Natural FrequenciesWidthDepthHeightFront-BackSide56054.2573.2590.258.510Seismic Test ParametersC.G HeightSds (g)z/hIpAflx-HArig-H2012 ICC-471.9311.53.092.32	Dimensions (inches)Lowest Natural Frequency (Hz)WidthDepthHeightFront-BackSide-Side56054.2573.2590.258.510.5Seismic Test ParametersTest CriteriaC.G Height (in.)Sds (g)z/hIpAflx-HArig-HAflx-V2012 ICC-471.9311.53.092.321.29			

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



UUT 25 was mounted to a rigid base with (8) 1/2" bolts (Grade 5). The steel frame (carbon steel) was welded to the shake table.