



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

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

OFFICE USE ONLY

APPLICATION #: OSP – 0337 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Eaton

Manufacturer's Technical Representative: Virginia Snyder

Mailing Address: 8609 Six Forks Rd, Raleigh, NC 27616

Telephone: 919-870-3482 Email: VirginiaASnyder@eaton.com

Product Information

Product Name: Uninterruptible Power Supplies, Model line 9155, 9355 and 5SC

Product Type: Uninterruptible Power Supplies

Product Model Number: See product range summary

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

General Description: Uninterruptible power supplies and accessories per UL 1778 and qualified for use in
Emergency systems per UL 924. Power ratings up to 15kVA and 240 Vac.

Mounting Description: Rigid floor mounted.

Applicant Information

Applicant Company Name: Eaton

Contact Person: Eddie Wilkie

Mailing Address: 175 Vista Blvd., Arden NC 28704

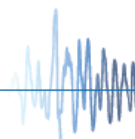
Telephone: 828-651-0707 Email: eddiewilkie@eaton.com

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: 5/20/16

Title: Engineering Director Company Name: Eaton

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic 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: SE 4545

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): _____

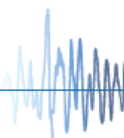
Testing Laboratory

Company Name: NTS Laboratories

Contact Name: Phil McNaught

Mailing Address: P.O. Box 7777, Huntsville, AL 35807

Telephone: 256-716-4130 Email: Phil.McNaught@NTS.com





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Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.86

S_{DS} (Design spectral response acceleration at short period, g) = 2.58

a_p (In-structure equipment or component amplification factor) = 1.0

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) = 1.0

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): Product Range Summary

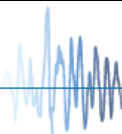
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature:  Date: 9/07/2016

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.58 z/h = 1.0

Condition of Approval (if applicable): _____





Certified Product Range Summary

Single Phase Uninterruptible Power Supplies (UPS)^a

Model Line	Model	NEMA Enclosure Type	kVA	Maximum Voltage	Enclosure ^b Dimensions ^c (in.)			Weight (lbs.)	S _{DS} (g)	Unit Tested
					Width	Depth	Height			
9155 & 9355	G410110000 (5169350)	1	12	240	18	32	34	452	2.58	6
	103006185	1	15	240	18	32	49.5	750	2.58	7
5SC	5SC500	1	0.500	120	9.28	10.3	8.2	15.2	2.58	Extrapolated
	5SC750	1	0.750	120	9.28	14.3	8.2	23.1	2.58	Extrapolated
	5SC1000	1	1.000	120	9.28	15.52	8.25	24	2.58	25
	5SC1000i-Z3	1	1.000	120	9.28	15.52	8.25	24	2.58	Extrapolated
	5SC1500	1	1.440	120	9.28	17.4	8.25	34	2.58	24

- a. Manufactured by Eaton.
- b. Enclosure made from carbon steel.
- c. Dimensions include seismic mounting kit

Seismic Kits					
Part Number	Manufacturer	Description	Operating Weight (lbs)	Mounting	Unit
Seismic Kits¹					
P-103001016	Eaton	Kit, Seismic, Universal	3	STRAPPED	UUT 24, 25
103004194-5501	EATON	9X55 8-15kVA	99	BOLTED	UUT 6
103004194-5501	EATON	9X55 8-15kVA	133	BOLTED	UUT 7
Electronics Modules					
710-15919-10P	Eaton	PCBA, Main Power Circuit	1	BOLTED	UUT 24,25
710-15920-05P	Eaton	PCBA, Communications Circuit	1	BOLTED	UUT 24,25
126-00187-00	Eaton	LCD Display Assembly	1	BOLTED	UUT 24,25
1024064	EATON	8-10 KVA ELECTRONICS MODULE	150	BOLTED	UUT 6
1024016	EATON	12-15 KVA ELECTRONICS MODULE	160	BOLTED	UUT 7
Batteries					
PWHR1234W2FR	Leoch	12 V, (9 AH), VRLA	4	STRAPPED	UUT 24,25
PWHR1234W2FR	CSB	12 V, 34 WATT (9 AH), VRLA	6	STRAPPED	UUT 6, 7
Breakers					
229-2-IREC5-34933-100	AIRPAX	CIRCUIT BREAKER	1	BOLTED	UUT 6, 7
LEL11-35311-1-V	AIRPAX	CIRCUIT BREAKER	1	BOLTED	UUT 6
LELK111-36610-40-V	AIRPAX	CIRCUIT BREAKER	1	BOLTED	UUT 7
LEGS1-35313-3-V	AIRPAX	CIRCUIT BREAKER	1	BOLTED	UUT 6, 7

1. Certain pieces of seismic kit 103004194-5501 are excluded during installation per install instructions when used with UUT 6, reducing installed weight of the kit from 133lbs to 99lbs.



Certified Enclosure Summary Single Phase UPS

Model Line	NEMA Enclosure Type	Dimensions (in.) ²			Manufacturer	Tested in Unit	Notes
		Width	Depth	Height			
5SC	1	6	9.4	8.2	Eaton	Extrapolated	1
	1	6	13.4	8.2	Eaton	Extrapolated	1
	1	6	14.62	8.25	Eaton	24	1
	1	6	16.5	8.25	Eaton	25	1
9155 & 9355	1	12	32	33	Eaton	6	1
	1	12	32	48.5	Eaton	7	1

Notes:

1. All enclosures made from carbon steel.
2. Does not include seismic mounting kit

Unit Under Test (UUT) Testing Summary Sheet



Manufacturer: Eaton						
Model Line: 5SC, 9155 and 9355						
UUT	Unit Description	Report Number	Test Laboratory	S _{DS}	z/h	I _p
6	G410110000	70961R13-1	Wyle Laboratories	2.58	1	1.5
7	103006185	70961R13-1	Wyle Laboratories	2.58	1	1.5
24	5SC1000	41213-TR-16	NTS Laboratories	2.58	1	1.5
25	5SC1500	41213-TR-16	NTS Laboratories	2.58	1	1.5



Resonance Frequency Summary Single Phase UPS

Report	UUT	Front-Back (Hz)	Side-Side (Hz)	Vertical (Hz)
70961R13-1	6	>33	24	>33
70961R13-1	7	18	12	>33
41213-TR-16	24	>33	18	>33
41213-TR-16	25	>33	18	>33

UUT 6 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: 9155

Model Number: G410110000 (5169350)

Product Construction Summary: Cabinet is constructed of powder coated carbon steel, NEMA Type 1 enclosure rating.

Options/Component Summary: Seismic Kit (Eaton P/N: 103004194-5501), Electronics Module (Eaton P/N: 1024064), Breaker (Airpax P/N: 229-2-IREC5-34933-100, LEL11-35311-1-V, LEGS1-35313-3-V), Battery (CSB P/N: PWHR1234W2FR)

UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
452	18	32	34	>33	24	>33

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.58	1	1.5	4.13	3.10	1.73	0.70

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



UUT 6 (right) was mounted to a rigid frame using (12) M10 bolts.

UUT 7 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: 9355

Model Number: 103006185

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

Options/Component Summary: Seismic Kit (Eaton P/N: 103004194-5501), Electronics Module (Eaton P/N: 1024016), Breaker (Airpax P/N: 229-2-IREC5-34933-100, LELK111-36610-40-V, LEGS1-35313-3-V), Battery (CSB P/N: PWHR1234W2FR)

UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
750	18	32	49.5	18	12	>33

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.58	1	1.5	4.13	3.10	1.73	0.70

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



UUT 7 (left) was mounted to a rigid frame using (12) M10 bolts.

UUT 24 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: 5SC

Model Number: 5SC1500

Product Construction Summary: Cabinet is constructed of powder coated carbon steel, NEMA Type 1 enclosure rating.

Options/Component Summary: Seismic Kit (Eaton P/N P-103001016), PCBA, Main Power Circuit PC board assembly

(Eaton P/N 710-15919-10P), Communications Circuit PC board assembly (Eaton P/N 710-15920-05P), LCD Assembly (Eaton P/N 126-00187-00), Batteries (Eaton P/N PWHR1234W2FR)

UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
34	6	16.5	8.25	>33	18	>33

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.58	1	1.5	4.13	3.10	1.73	0.70

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



UUT 24 (right) was mounted to a rigid frame using (4) 1/2-13 bolts and mounting kit P-103001016.

UUT 25 (Unit Under Test) Summary Sheet

Manufacturer: Eaton Corporation

Product Line: 5SC

Model Number: 5SC1000

Product Construction Summary: Cabinet is constructed of powder coated carbon steel, NEMA Type 1 enclosure rating.

Options/Component Summary: Seismic Kit (Eaton P/N P-103001016), PCBA, Main Power Circuit PC board assembly (Eaton P/N 710-15919-10P), Communications Circuit PC board assembly (Eaton P/N 710-15920-05P), LCD Assembly (Eaton P/N 126-00187-00), Batteries (Eaton P/N PWHR1234W2FR)

UUT Properties (As Tested)

Weight (lbs.)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Width	Depth	Height	Front-Back	Side-Side	Vertical
24	6	14.62	8.25	>33	18	>33

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.58	1	1.5	4.13	3.10	1.73	0.70

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



UUT 25 (left) was mounted to a rigid frame using (4) 1/2-13 bolts and mounting kit P-103001016.