



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

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0486 – 10**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Eaton Corporation

Manufacturer's Technical Representative: Mario Perciballi

Mailing Address: 3301 Spring Forest Rd, Raleigh, NC 27616

Telephone: 919-878-1071

Email: MarioAPerciballi@Eaton.com

Product Information

Product Name: 9X55 UPS and Accessories

Product Type: Uninterruptable Power Supplies and Accessories

Product Model Number: 9155 UPS, 9355 UPS, 9355 Options Cabinet, 9X55 Battery Cabinet

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

General Description: Backup power systems constructed of formed carbon steel framing and cabinets with capacity
Ranging from 8 – 30 kVA. UL924 option.

Mounting Description: Base mounted – rigid supported

Applicant Information

Applicant Company Name: TRU Compliance, LLC

Contact Person: Matthew Tobolski, PhD, SE

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200

Email: mtobolski@trucompliance.com

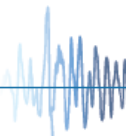
I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: _____

Date: 10/15/2016

Title: President

Company Name: TRU Compliance, LLC





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

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

Company Name: TRU Compliance, LLC

Name: Matthew Tobolski, PhD, SE California License Number: S5648

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200 Email: mtobolski@trucompliance.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): _____

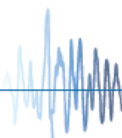
Testing Laboratory

Company Name: NTS (formerly Wyle Laboratories)

Contact Name: Tom Boonarkat

Mailing Address: 7800 Highway 20 West, Huntsville, AL 35806

Telephone: (256) 837-4411 Email: Tom.Boonarkat@nts.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) = 1.33

S_{DS} (Design spectral response acceleration at short period, g) = 1.85g @ z/h=1; 2.96g @ z/h=0

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 and 0

Equipment or Component Natural Frequencies (Hz) = See Attachment

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

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): Attachment

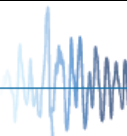
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature:  Date: April 10, 2017

Print Name: Ali Sumer Title: DSE

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

Condition of Approval (if applicable): _____



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16031



Manufacturer: EATON Corporation	TABLE 1
Model Line: 9X55	

Certified Product Construction Summary:
Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Certified Options Summary:
See Certified Subcomponent Matrices

Mounting Configuration:
Base mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 **Seismic Certification Limits:** $S_{DS} = 1.85 g$ $z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 2.96 g$ $z/h=0.0$

Model Line	Model ¹	Dimensions (in) ²			Weight (lb) ²	Notes	UUT
		Depth	Width	Height			
9155 (2-HIGH) UPS w/ 32 Battery	K408X1X0XXX0X0	33.7	12.0	32.2	459	8 kVA	Extrap.
	K410X1X0XXX0X0	33.7	12.0	32.2	459	10 kVA	Extrap.
	K421X1X0XXX0X0	33.7	12.0	32.2	459	12 kVA	Interp.
	G410110000	33.7	12.0	32.2	459	12 kVA (9155-10GE)	16
	K415X1X0XXX0X0	33.7	12.0	32.2	459	15 kVA	Interp.
9155 (3-HIGH) UPS w/ 64 Battery	K408X2X0XXX0X0	33.7	12.0	47.8	736	8 kVA	Interp.
	K410X2X0XXX0X0	33.7	12.0	47.8	736	10 kVA	Interp.
	K412X2X0XXX0X0	33.7	12.0	47.8	736	12 kVA	Interp.
	K415X2X0XXX0X0	33.7	12.0	47.8	736	15 kVA	Interp.
9155 (3-HIGH) UPS w/ 32 Battery w/ Trans. Mod.	K408X3X0XXX0X0	33.7	12.0	47.8	736	8 kVA	Interp.
	K410X3X0XXX0X0	33.7	12.0	47.8	736	10 kVA	Interp.
	K412X3X0XXX0X0	33.7	12.0	47.8	736	12 kVA	Interp.
	K415X3X0XXX0X0	33.7	12.0	47.8	736	15 kVA	Interp.
9155 (3-HIGH) UL 924 1PH UPS	BH-08KEL277-100	33.7	12.0	47.8	736	7.2 kVA	Interp.
	BH-10KEL277-10	33.7	12.0	47.8	736	9 kVA	Interp.

¹ "X" Indicates selection digit not critical to seismic performance; see nomenclature description.
² Maximum dimensions without seismic mounting kit, maximum weight includes seismic mounting kit

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16031



Manufacturer: EATON Corporation						TABLE 2	
Model Line: 9X55							
Certified Product Construction Summary: Formed carbon steel internal framing with carbon steel panelized walls, base and roof.							
Certified Options Summary: See Certified Subcomponent Matrices							
Mounting Configuration: Base mounted - rigid Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
Building Code: CBC 2016		Seismic Certification Limits:			$S_{DS} = 1.85 g$	$z/h=1.0$	$I_p = 1.5$
					$S_{DS} = 2.96 g$	$z/h=0.0$	
Model Line	Model ¹	Dimensions (in) ²			Weight (lb) ²	Notes	UUT
		Depth	Width	Height			
9355 (2-HIGH) UPS w/ 32 Battery	KA10X1X0XXXXX0X0	33.7	12.0	32.2	480	10 kVA	Extrap.
	KA15X1X0XXXXX0X0	33.7	12.0	32.2	480	15 kVA	Interp.
	KA1511100000010	33.7	12.0	32.2	480	15 kVA	1
9355 (3-HIGH) UPS w/ 64 Battery	KA10X2X0XXXXX0X0	33.7	12.0	47.8	755	10 kVA	Extrap.
	KA15X2X0XXXXX0X0	33.7	12.0	47.8	755	15 kVA	Interp.
	P-103000337	33.7	12.0	47.8	755	15 kVA	Interp.
	103006185	33.7	12.0	47.8	755	15 kVA (9355-15-14GE)	17
9355 (3-HIGH) UL 924 3PH UPS	BH-10KEL2083P-100	33.7	12.0	47.8	755	8.5 kVA 208V	Extrap.
	BH-15KEL2083P-100	33.7	12.0	47.8	755	13.1 kVA 208V	Interp.
9355 (3-HIGH) UPS w/ 32 Battery w/ Trans. Mod.	KA10X3X0XXXXX0X0	33.7	12.0	47.8	755	10 kVA	Extrap.
	KA15X3X0XXXXX0X0	33.7	12.0	47.8	755	15 kVA	Interp.
	KA1513400000010	33.7	12.0	47.8	755	15 kVA	2
9355 (20-30 kVA)	KB20XXX0XXXXXXXXXX	34.1	20.0	67.0	1155	20 kVA	Interp.
	KB30XXX0XXXXXXXXXX	34.1	20.0	67.0	1155	30 kVA	Interp.
	KB3013100000010	34.1	20.0	67.0	1155	30 kVA	4
9355 (20-30 kVA) Options Cabinet	KBT0X0XXXXXXXXXXXX	34.1	20.0	67.0	222	MBS Only	Interp.
	KBT0X1XXXXXXXXXXXX	34.1	20.0	67.0	490	MBS + Input Xfrmr	Interp.
	KBT0X2XXXXXXXXXXXX	34.1	20.0	67.0	490	Input Xfrmr Only	Interp.
	KBT0X3XXXXXXXXXXXX	34.1	20.0	67.0	490	Output Xfrmr Only	Interp.
	KBT001100000010	34.1	20.0	67.0	490	MBS + Input Xfrmr	5

¹ "X" Indicates selection digit not critical to seismic performance; see nomenclature description.

² Maximum dimensions without seismic mounting kit, maximum weight includes seismic mounting kit

SPECIAL SEISMIC CERTIFICATION PRODUCT NOMENCLATURE

TRU PROJECT NO. 16031



Manufacturer: EATON Corporation		TABLE 4	
Model Line: 9X55 8-15 kVA Nomenclature			
Digit	Item	Description	UUT
1	Model Line	K = 9X55	1,2,16,17
2	Base Model	4 = 9155 (8-15 kVA)	16
		A = 9355 (10-15 kVA)	1,2,17
3-4	kVA Rating	08 = 8 kVA	
		10 = 10 kVA	
		12 = 12 kVA	16
		15 = 15 kVA	1,2,17
5	System Type	1 = Reverse Transfer (not critical to seismic, programming)	1,2,16,17
		2 = Parallel (not critical to seismic, programming)	
		A = Reverse Transfer, FAA (not critical to seismic, programming)	
6	Battery Configuration	1 = 1 Battery Module	1,16
		2 = 2 Battery Modules	17
		3 = 1 Battery Module + Transformer Module	2
		4 = 1 Battery Module w/o Batteries	
		5 = 2 Battery Modules w/o Batteries	
		6 = 1 Battery Module w/o Batteries + Transformer Module	
7	Voltage Configuration	0 = N/A (only 9155)	16
		1 = 120/208V in/out, 50/60 Hz Autodetect (only 9355)	1
		2 = 127/220V in/out, 50/60 Hz Autodetect (only 9355)	
		4 = 480V in, 120/208V out (only 9355)	2,17
		6 = 600V in, 120/208V out (only 9355)	
8	Communications Options	0 = None	1,2,16,17
		3 = ConnectUPS WE/SNMP with EMP	
		4 = Modbus Communications Card	
		5 = Standard Relay Interface Card	
		6 = Industrial Relay Interface Card	
		7 = Internal Modem Card	
9-12	Power Distribution	0-4, A-N, P, S, X - Plug Configurations (not critical to seismic)	1,2,16,17
13	Unused	0 = None	1,2,16,17
14	Start-up Options	1-4 - Warranty and Service Options (not critical to seismic)	1,2,16,17
15	Unused	0 = None	1,2,16,17

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16031



Manufacturer: EATON Corporation		Table Description: ELECTRICAL COMPONENTS			TABLE 7
Model Line: 9X55					
Building Code: CBC 2016		Seismic Certification Limits: $S_{DS} = 1.85 g$ $z/h = 1.0$ $S_{DS} = 2.96 g$ $z/h = 0.0$			$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
ELECTRONICS MODULE	EATON	1024064	9155 module, 15 kVA and under		16
		744-A0421	9355 module, 15 kVA and under		1,2,17
BATTERY	CSB	PWHR1234W2FR	12V, 34 WATT (9 AH), VRLA		1-4,16,17
STATIC SWITCH	EATON	103004889	30 kVA		4
CONTACTOR	EATON	E111D85X3N	Output contactor, 115A		4
		E111D10X3N	Bypass and input contactor, 130A		1,2,4,16,17
TRANSFORMER	EATON	V29M28E35M-50C	35 kVA, 208/208 (Al)		5
	TRAFOTEK	149502093	600-208/208 (Cu)		2
BREAKER	AIRPAX	209-2-34218-1-V	1A, 2 POLE		Extrap.
		209-3-34218-2-V	2A, 2 POLE		2
		229-2-IREC5-33735-100	100A, 2 POLE		1,2,16,17
	EATON (E-FRAME)	EGS3070FFG	70A, 3 POLE, Thermal Trip		Extrap.
		EGK3125KSG	125A, 3 POLE, Thermal Trip		Extrap.
		EGS3125FFG	125A, 3 POLE, Thermal Trip		4
	EATON (F-FRAME)	HFDDC3150LA1301U3801	150A, 3 POLE		Interp.
		FD2200S18	200A, 2 POLE, Shunt Trip		4
		FD3225KLA06	225A, 3 POLE		Extrap.
	EATON (G-FRAME)	GHC3020	20A, 3 POLE		4
		GHC3030	30A, 3 POLE		Interp.
		GHC3060	60A, 3 POLE		Interp.
POWER MODULE	EATON	103004894	30 kVA power module		4
		103004889	30 kVA power module/static switch		4

UNIT UNDER TEST (UUT) SUMMARY SHEET



TRU PROJECT NO. 16031

Manufacturer: EATON Corporation
Model Line: 9X55
Model Number: KA1511100000010

UUT 1

Product Construction Summary:
 Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Options/Subcomponent Summary:
Frame: 9X55 8-15 kVA (2-HIGH); **Seismic Kit:** 103004194-5501; **Breakers:** 229-2-IREC5-33735-100; **Electrics Modules:** 744-A0421;
Batteries: PWHR1234W2FR; **Contactor:** E111D10X3N

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
480	34	18	32	27	15	>33

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	1.85	1.0	1.5	2.96	2.22	1.24	0.50
		2.96	0.0	1.5	2.96	1.18	1.98	0.80

Test Mounting Details:



12 Φ M10, Class 8.8 bolts
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



TRU PROJECT NO. 16031

Manufacturer: EATON Corporation
Model Line: 9X55
Model Number: KA1513400000010

UUT 2

Product Construction Summary:
 Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Options/Subcomponent Summary:
Frame: 9X55 8-15 kVA (3-HIGH); **Seismic Kit:** 103004194-5501; **Breakers:** 209-3-34218-2-V, 229-2-IREC5-33735-100;
Transformers: 149502093; **Electronics Module:** 744-A0421; **Batteries:** PWHR1234W2FR; **Contactors:** E111D10X3N

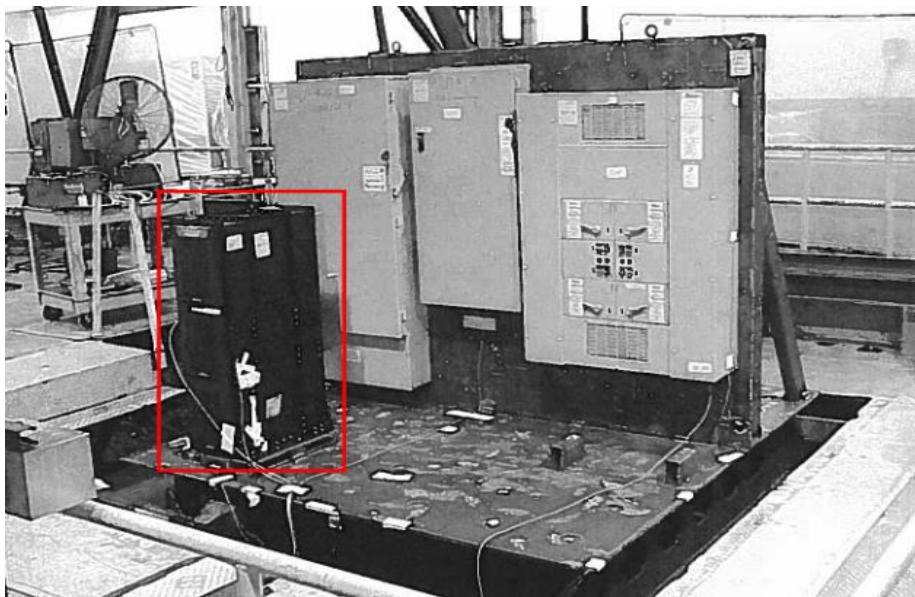
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
755	32.5	14.5	49.5	17	8.8	>33

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	1.93	1.0	1.5	3.09	2.32	1.29	0.52
		3.09	0.0	1.5	3.09	1.24	2.07	0.83

Test Mounting Details:



12 Φ M10, Class 8.8 bolts
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16031



UUT 3

Manufacturer: EATON Corporation
Model Line: 9X55
Model Number: 103004193-5501

Product Construction Summary:
 Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Options/Subcomponent Summary:
Frame: 9X55 8-15 kVA (3-HIGH); **Seismic Kit:** 103004194-5501; **Batteries:** PWHR1234W2FR

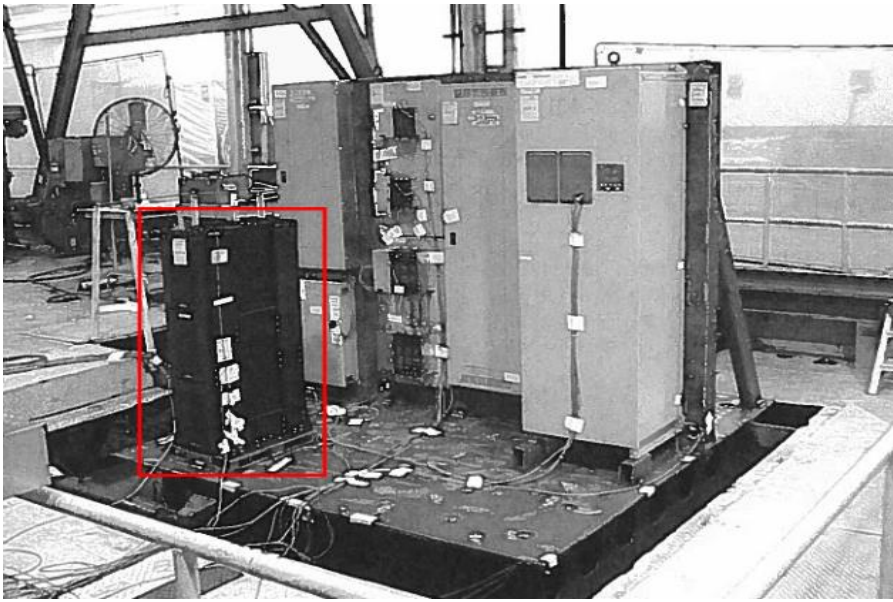
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
855	28.5	14.5	50	17	6	>33

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	2.03	1.0	1.5	3.25	2.44	1.36	0.55
		3.25	0.0	1.5	3.25	1.30	2.18	0.88

Test Mounting Details:



12 Φ M10, Class 8.8 bolts
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16031



UUT 4

Manufacturer: EATON Corporation
Model Line: 9X55
Model Number: KB301310000010

Product Construction Summary:
 Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Options/Subcomponent Summary:
Frame: 9X55 20-30 kVA; **Seismic Kit:** 103004896; **Breakers:** EGS3125FFG, FD2200S18, GHC3020; **Power Module:** 103004894, 103004889; **Batteries:** PWHR1234W2FR; **Static Switch:** 103004889; **Contactors:** E111D10X3N

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1155	44	24	65	64.4	64.4	>33

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	1.85	1.0	1.5	2.96	2.22	1.24	0.50
		2.96	0.0	1.5	2.96	1.18	1.98	0.80

Test Mounting Details:



10 Φ M10, Class 8.8 bolts
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16031



UUT 5

Manufacturer: EATON Corporation
Model Line: 9X55
Model Number: KBT001100000010

Product Construction Summary:
 Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Options/Subcomponent Summary:
Frame: 9X55 20-30 kVA; **Seismic Kit:** 103004896; **Transformers:** V29M28E35M-50C

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
490	44	24	66	7.5	7.2	>33

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	2.03	1.0	1.5	3.25	2.44	1.36	0.55
		3.25	0.0	1.5	3.25	1.30	2.18	0.88

Test Mounting Details:



10 Φ M10, Class 8.8 bolts
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16031



Manufacturer: EATON Corporation	UUT 16
Model Line: 9X55	
Model Number: G410110000 Serial Number: BG095FBB06	

Product Construction Summary:
Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Options/Subcomponent Summary:
Frame: 9X55 8-15 kVA (2-HIGH); **Seismic Kit:** 103004194-5501; **Breakers:** 229-2-IREC5-33735-100; **Electronics Module:** 1024064; **Batteries:** PWHR1234W2FR; **Contactor:** E111D10X3N

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
452	34	18	32	>33	24	>33

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	2.73	1.0	1.5	4.37	3.28	1.83	0.74
		4.37	0.0	1.5	4.37	1.75	2.93	1.18

Test Mounting Details:



12 Φ M10, Class 8.8 bolts
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16031



Manufacturer: EATON Corporation	UUT 17
Model Line: 9X55	
Model Number: 103006185 Serial Number: BG111JBA01	

Product Construction Summary:
Formed carbon steel internal framing with carbon steel panelized walls, base and roof.

Options/Subcomponent Summary:
Frame: 9X55 8-15 kVA (3-HIGH); **Seismic Kit:** 103004194-5501; **Breakers:** 229-2-IREC5-33735-100; **Electronics Module:** 1024016; **Batteries:** PWHR1234W2FR; **Contactor:** E111D10X3N

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
750	32	18	49.5	18	12	>33

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	2.73	1.0	1.5	4.37	3.28	1.83	0.74
		4.37	0.0	1.5	4.37	1.75	2.93	1.18

Test Mounting Details:



12 Φ M10, Class 8.8 bolts
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.