



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY
APPLICATION #: OSP - 0638

OSHPD Special Seismic Certification Preapproval (OSP)

Type: [X] New [] Renewal

Manufacturer Information

Manufacturer: Vertiv

Manufacturer's Technical Representative: Keith Goshia

Mailing Address: 975 Pittsburgh Drive, Delaware, OH 43015

Telephone: (740) 833-8557 Email: keith.goshia@vertiv.com

Product Information

Product Name: Liebert EXL UPS

Product Type: Uninterruptible Power Supply (UPS) SP-0638

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

General Description: UPS Cabinet

Mounting Description: Base mounted-rigid

Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

Contact Person: Galen Reid

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

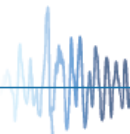
Telephone: 844-878-0200 Email: greid@structint.com

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: [Handwritten Signature] Date: 12/30/2019

Title: Program Manager Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

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: TRU Compliance, by Structural Integrity Associates, Inc.

Name: Andrew M. Coughlin California License Number: S6082

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

Telephone: 844-878-0200 Email: acoughlin@structint.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): _____

BY: William Staehlin

DATE: 05/13/2021

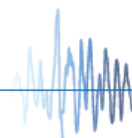
Testing Laboratory

Company Name: Environmental Testing Laboratory

Contact Name: Jeremy Lange

Mailing Address: 11034 Indian Trail, Dallas, TX 75229

Telephone: (972) 247-9657 Email: jeremy@etldallas.com





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Seismic Parameters

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

Design Basis of Equipment or Components (Fp/Wp) = 1.11 (SDS = 1.54, z/h = 1); 0.72 (SDS = 1.61, z/h = 0)

SDS (Design spectral response acceleration at short period, g) = 1.54 (z/h = 1), 1.61 (z/h = 0)

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

Rp (Equipment or component response modification factor) = 2.5

Omega_0 (System overstrength factor) = 2

Ip (Importance factor) = 1.5

z/h (Height factor ratio) = 1 (SDS = 1.54), 0 (SDS = 1.61)

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 [X] No

Design Basis of Equipment or Components (V/W) =

SDS (Design spectral response acceleration at short period, g) =

SD1 (Design spectral response acceleration at 1 second period, g) =

R (Response modification coefficient) =

Omega_0 (System overstrength factor) =

Cd (Deflection amplification factor) =

Ip (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 [X] No

List of Attachments Supporting Special Seismic Certification

[X] Test Report(s) [] Drawings [] Calculations [X] Manufacturer's Catalog

[X] Other(s) (Please Specify): Product Matrices

OSHPD Approval (For Office Use Only) - Approval Expires on December 31, 2025

Signature: [Handwritten Signature]

Date: May 13, 2021

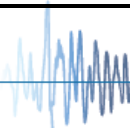
Print Name: William Staehlin

Title: Senior Structural Engineer

Special Seismic Certification Valid Up to : SDS (g) = See Above

z/h = See Above

Condition of Approval (if applicable):



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1900511-CR-001 R0



Manufacturer: Vertiv Corporation Model Line: EXL-S1	<h2>TABLE 1</h2>
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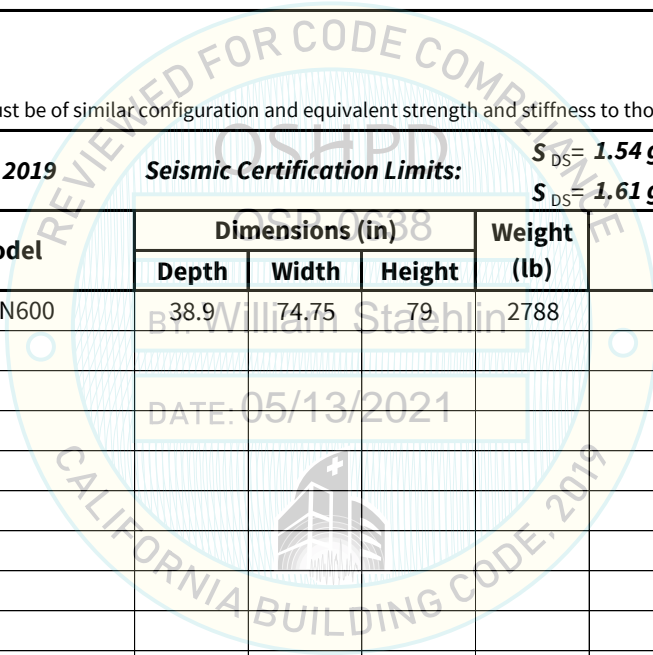
Certified Product Construction Summary:
Carbon steel frame and skins

Certified Options Summary:
600 kVA UPS with backfeed disconnect and sharing inductor

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 2019 **Seismic Certification Limits:** $S_{DS} = 1.54g$ $z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 1.61g$ $z/h=0.0$

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
EXL-S1 UPS	52SN600	38.9	74.75	79	2788		1

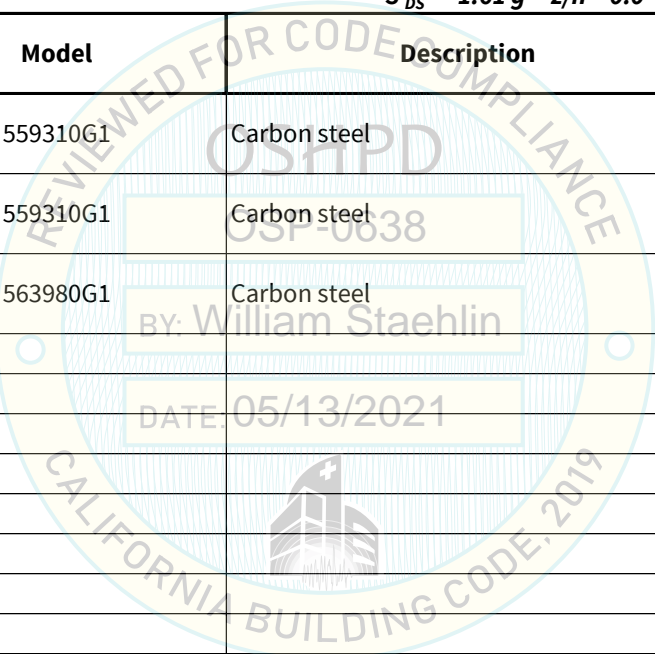


**SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX**

1900511-CR-001 R0



Manufacturer: Vertiv Corporation		Table Description: Modules			TABLE 2
Model Line: EXL-S1					
Building Code: CBC 2019		Seismic Certification Limits:		$S_{DS} = 1.54 g \quad z/h = 1.0$	
				$S_{DS} = 1.61 g \quad z/h = 0.0$	
				$I_p = 1.5$	
Component Type	Manufacturer	Model	Description	Notes	UUT
Power Module	Vertiv Corporation	559310G1	Carbon steel		1
Boost Module	Vertiv Corporation	559310G1	Carbon steel		1
Static Switch	Vertiv Corporation	563980G1	Carbon steel		1



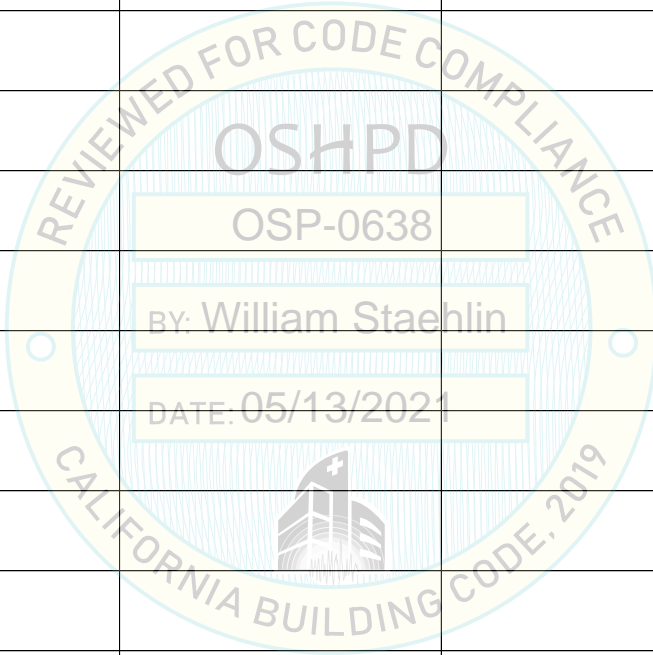
UNIT UNDER TEST (UUT) SUMMARY SHEET

1900511-CR-001 R0



Manufacturer: Vertiv Corporation
Model Line: EXL-S1

UUT	Unit Description	Report Number	Testing Laboratory	S _{DS}	z/h	I _p
1	EXL-S1 UPS	15392A Rev. 2 Seismic Certification Test Report and Report 15392A Rev. 2_Addendum 1	ETL - Dallas	1.54 1.61	1 0	1.5



Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900511-CR-001 R0



Manufacturer: Vertiv Corporation	UUT 1
Model Line: EXL-S1	
Model Number: 52SN600	
Serial Number: FEMAN62	

Product Construction Summary:
Carbon steel frame and skins

Options/Subcomponent Summary:
Power Module x 3 (PN: 559318G1), Boost Module x 1 (PN: 559310G1), Static Switch x1 (PN:563980G1)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
2788	38.9	74.75	79	7.88	8.29	17.48

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2019	ICC-ES AC156 (2015)	1.54	1.0	1.5	2.46	1.85	1.07	0.43
		1.61	0.0					

Test Mounting Details:



UUT base mounted-rigid to shake table with eight (8) L-brackets provided by the manufacturer (PN: 567256G1). Each L- bracket is attached to the front of the unit with four (4) M12X50 bolts. Each bracket was attached to the shake table with a 1/2" Grade 8 bolt with flat washer.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Contents were included in testing per operating conditions.