



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

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

OFFICE USE ONLY

APPLICATION #: OSP-0571

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Vertiv Corporation

Manufacturer's Technical Representative: Julian Freeman

Mailing Address: 975 Pittsburgh Drive, Delaware, OH 43015

Telephone: (740) 833-8910

Email: Julian.Freeman@vertiv.com

Product Information

Product Name: UPS and Batteries

Product Type: UPS

Product Model Number: See Attachment

General Description: Three phase UPS system with I/O Cabinets Karim

Mounting Description: Rigid, Floor Mounted

Tested Seismic Enhancements: None

Applicant Information

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

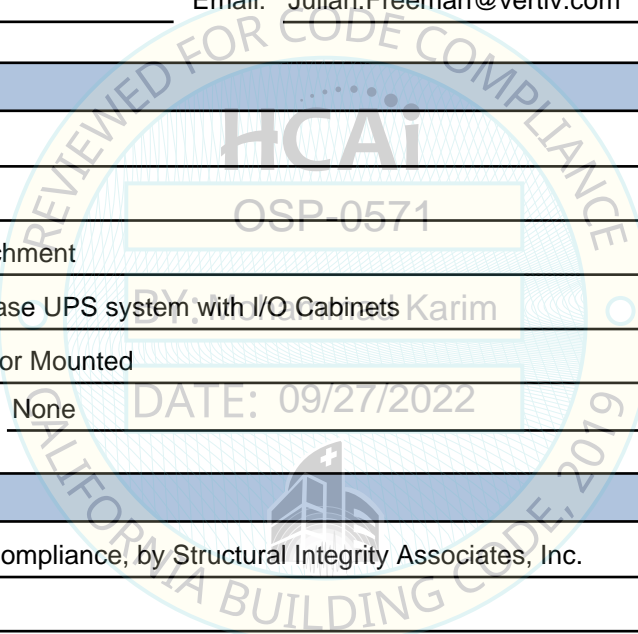
Contact Person: Dan Zentner

Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702

Telephone: (541) 292-5839

Email: dzentner@structint.com

Title: Program Manager





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

Company Name: STRUCTURAL INTEGRITY ASSOCIATES, INC.

Name: Andrew Coughlin California License Number: S6082

Mailing Address: 5215 Hellyer Ave, Suite 101, San Jose, CA 95138-1025

Telephone: (415) 635-8461 Email: acoughlin@structint.com

Certification Method

- GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
- Other (Please Specify): _____

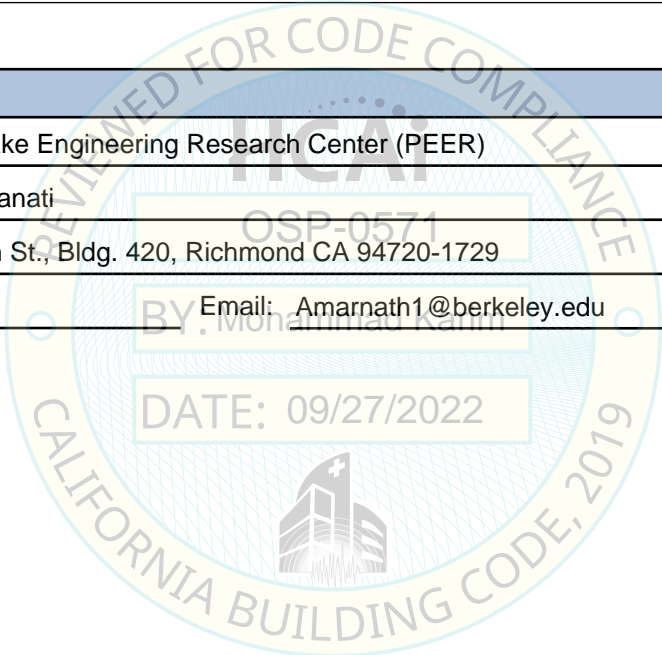
Testing Laboratory

Company Name: Pacific Earthquake Engineering Research Center (PEER)

Contact Person: Amarnath Kasalanati

Mailing Address: 1301 South 46th St., Bldg. 420, Richmond CA 94720-1729

Telephone: (510) 642-3437 Email: Amarnath1@berkeley.edu





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 0.72 (SDS = 1.00, z/h = 1); 0.64 (SDS = 1.43, z/h = 0)

SDS (Design spectral response acceleration at short period, g) = 1.00 at z/h=1, 1.43 at z/h=0

a_p (Amplification factor) = 1.0

R_p (Response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

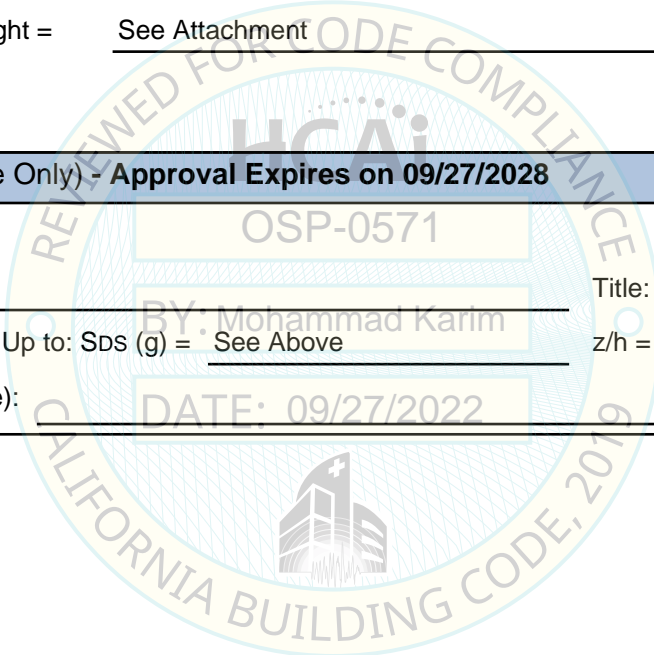
HCAI Approval (For Office Use Only) - Approval Expires on 09/27/2028

Date: 9/27/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

Condition of Approval (if applicable): DATE: 09/27/2022



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 18000143



Manufacturer: Vertiv Corporation						TABLE 1	
Model Line: Liebert EXL S1 UPS							
Certified Product Construction Summary: Carbon Steel Cabinets							
Certified Options Summary: I/O Cabinets are customizable with the following options: Back Feed Disconnect (BFD), Sharing Inductor, or Common Mode Choke. I/O-1 is fitted with one of the options. I/O-2 is fitted with a combination of two of the options. I/O-3 is fitted with all three options.							
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 2022		Seismic Certification Limits:			$S_{DS} = 1.00\text{ g}$	$z/h = 1.0$	$I_p = 1.5$
					$S_{DS} = 1.43\text{ g}$	$z/h = 0.0$	
Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
EXL S1 UPS	625 kVA/kW UPS	38.86	55.17	79.00	2902		Extrap.
	750 kVA/kW UPS	38.86	55.17	79.00	2902		Extrap.
	800 kVA/kW UPS	38.86	55.17	79.00	2902		1
	1000 kVA/kW UPS	38.86	73.9	79.00	4667		Interp.
	1100 kVA/kW UPS	38.86	73.9	79.00	4667		Interp.
	1200 kVA/kW UPS	38.86	73.9	79.00	4667		2
EXL Input/Output Cabinet	I/O-1	38.86	23.67	79.00	449	Back Feed Disconnect (BFD)	1
		38.86	23.67	79.00	619	Sharing Inductor	Interp.
		38.86	23.67	79.00	978	Common Mode Choke	Interp.
	I/O-2	38.86	54.22	79.00	749	BFD, Sharing Inductor	Interp.
		38.86	54.22	79.00	1287	Sharing Inductor, Common Mode Choke	Interp.
		38.86	54.22	79.00	1648	BFD, Common Mode Choke	Interp.
	I/O-3	38.86	54.22	79.00	2266	BFD, Sharing Inductor, Common Mode Choke	2

Note: Model number identifies unique configuration

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 18000143



Manufacturer: Vertiv Corporation	UUT 2
Model Line: Liebert EXL S1 UPS	
Model Number: 52SA12MADAAA862	
Serial Number: D180000001	

Product Construction Summary:
NEMA 1 Carbon Steel Enclosure

Options/Subcomponent Summary:
1200 kVA UPS with I/O-3. Tested with the following options: Back feed disconnect (BFD), Bypass (Sharing) Inductors, and Common Mode Choke.

<i>UUT Properties</i>						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
6,933	39	128	79	8.5	6.7	28.7

<i>UUT Highest Passed Seismic Run Information</i>									
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 2022	ICC-ES AC156	1.00	1.0	1.5	1.60	1.20	0.95	0.38	
		1.43	0.0						

Test Mounting Details:



UUT 2 is base mounted-rigid to the shake table with sixteen (16) manufacturer supplied angles (P/N 544556P1) and sixteen (16) 3/4" grade 8 bolts, lock washers, and flat washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.