

DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC	OFFICE USE ONLY
CERTIFICATION PREAPPROVAL (OSP)	APPLICATION #: OSP-0674
HCAI Special Seismic Certification Preapproval (OSP)	
Type: X New Renewal	
Manufacturer Information	
Manufacturer: Vertiv Corporation	
Manufacturer's Technical Representative: Keith Goshia	
Mailing Address: 975 Pittsburgh Drive, Delaware, OH 43015	
Telephone: (740) 833-8557 Email: keith.goshia@vet	iv.com
Product Information	10,
Product Name: UPS and Batteries	E.
Product Type: UPS	Z
Product Model Number: Varies, see tables	m
General Description: UPS (lithium-ion battery cabinet) base mounted rigi	<mark>d</mark> standalone or base mounted rigid ganged.
Mounting Description: Rigid, Floor Mounted	
Tested Seismic Enhancements: None DATE: 03/08/2022	0
	0
Applicant Information	
Applicant Company Name: TRU Compliance, by Structural Integrity Associa	tes, Inc.
Contact Person: Katie Braman	
Mailing Address: 5215 Hellyer Ave, Suite 101, San Jose, CA 95138-1025	
Telephone: (541) 526-1947 Email: kbraman@structi	nt.com
Title: Program Manager	

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





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California Licensed Structural Enginee	r 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 X ICC-ES AC1	56 IEEE 344 IEEE 693 NEBS 3
Other (Please Specify):	
	EOR CODE CO.
Testing Laboratory	De Ma
Company Name: ENVIRONMENTAL TESTIN	G LABORATORIES, INC. (ETL)
Contact Person: Jeremy Lange	2
Mailing Address: 11034 Indian Trail, Dallas T	x 75229-3513
Telephone: (972) 247-9657	By Email: info@etIdallas.com
	DATE: 03/08/2022
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	Plin
	DATE: 03/08/2022

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

Seismic Parameters

Desig	n Basis of Equipment or Components	(Fp/Wp) =	1.224 @ 1.7g, z/h =1;	0.967@2.15	g, z/h=0
	SDS (Design spectral response accele	eration at sh	ort period, g) = $1.7g$ @	z/h=1; 2.15g	@ z/h=0
	ap (Amplification factor) =	1.0			
	Rp (Response modification factor) =	2.5			
	Ω_0 (System overstrength factor) =	2.0			
	Ip (Importance factor) =	1.5			
	z/h (Height ratio factor) =	1 and 0			
	Natural frequencies (Hz) =	See Attach	iment		
	Overall dimensions and weight =	See Attach	ment ODF		
HCA	Approval (For Office Use Only)	Approval	Expires on 03/08/202	28 7	
Date:	3/8/2022		OSP-0674	G	
Name	e: Mohammad Aliaari			Title:	Senior Structural Engineer
Speci	al Seismic Certification Valid Up to: SE	os (g) = _Se	e Above	z/h =	See Above
Condi	tion of Approval (if applicable):	DATE	: 03/08/2022	100	
		PRNIA E	BUILDING CO	102	

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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2000359-CR-001-R0



TABLE 1

Vertiv Corporation Li-Ion Battery Cabinet

Certified Product Construction Summary:

14 ga. Carbon Steel Cabinet

Manufacturer:

Model Line:

Certified Options Summary:

11-17 Lithium Battery Modules. Quantity is uniquely identified by model number. All other subcomponents are identical between models.

Mounting Configuration:

Base mounted - Rigid (Standalone)

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

OR

Building Code: CBC 2019	L'H	Seismic (Certificatio	on Limits:		1.70 g z/h=1.0 2.15 g z/h=0.0	<i>I</i> _P = 1.5
Model Line	Model	Dimensions (in) 4		Weight	Notes	UUT	
Model Line	Model	Depth	Width	Height ¹	(lb)	Notes	001
	PHR2 <mark>042-0</mark> 01A	BY21 _{Mo}	har ²⁶ ma	d A ^g iaa	ri 763	11 Battery Modules	2
	PHR2 <mark>652-00</mark> 1A	21	26	91	866	13 Battery Modules	Interp
Lithium-Ion Battery – Cabinet –	PHR28 <mark>52-00</mark> 1A	A21	26	91	902	14 Battery Modules	Interp
	PHR3262-001A	21	26	91	974	16 Battery Modules	Interp
	PHR3462-001A	21	26	91	1010	17 Battery Modules	1
				ANNA			
	Y A	N NAMES		RRDD	\mathcal{O}^{\vee}		
		VA D					
		·B	DILD!	NO			
lote:		<u> </u>	1	1	1	I	I

¹The 91.0" height includes the height of the top hat junction box.

SPECIAL SEISMIC CERTIFICATION **CERTIFIED COMPONENT MATRIX**

2000359-CR-001-R0

Manufacturer:



Vertiv Corporation **TABLE 2** Model Line: Li-Ion Battery Cabinet **Certified Product Construction Summary:** 14 ga. Carbon Steel Cabinet **Certified Options Summary:** 22-34 Lithium Battery Modules. Quantity is uniquely identified by model number. All other subcomponents are identical between models. Mounting Configuration: Base mounted - Rigid (Ganged) Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. $S_{DS} = 1.70 g z/h=1.0$ Building Code: CBC 2019 Seismic Certification Limits: *I*_P= 1.5 $S_{DS} = 2.15 g z/h=0.0$ **Dimensions** (in) 4 Weight² Model⁴ UUT **Model Line** Notes Height³ Depth Width (lb) PHR2042-001A 22 Battery Modules 21 / 52n 91 1724 Interp. PHR2652-001A 26 Battery Modules 21 52 91 1773 Interp. Lithium-Ion Battery PHR2852-001A 28 Battery Modules 21 52 91 1845 Interp. Cabinet PHR3262-001A 21 52 91 32 Battery Modules 1917 Interp. PHR3462-001A 34 Battery Modules¹ 21 52 91 1989 3 Notes:

UUT1 and UUT2 were ganged to together and populated with 17 battery modules each to create UUT3.

 2 The ganged unit weighs less than identical standalone units due to the interior panels being removed to join the two battery cabinets.

³The 91.0" height includes the height of the top hat junction box.

The model numbers do not change for the ganged configuration.

SPECIAL SEISMIC CERTIFICATION **CERTIFIED SUBCOMPONENT MATRIX**

2000359-CR-001-R0





Manufacturer: Model Line:	Vertiv Corporation Li-Ion Battery Cabinet	Table Description: Various Subcomponents	TABLE 3
Building Code: CBC 2	019	Seismic Certification Limits: $S_{DS} = 1.70 g$ $z/h = 1.0$ $I_P = 1.5$ $S_{DS} = 2.15 g$ $z/h = 0.0$ $I_P = 1.5$	
Component Type	Manufacturer	Model FOR CODE Description	Notes UUT
Battery Modules	Samsung —	EM2031AE00XAType A, 36.0 lbs, Plastic CaseEM2031AE00YAType B, 36.0 lbs, Plastic Case	1,2,3 1,2,3
SMU	Samsung	V049-0011XA Carbon Steel, Plastic	1,2,3
	Sunsung	V044-0006XA 3-Phase Type A, Carbon Steel, Plastic	1,2,3
		SJ94-00238B 3-Phase Type B, Carbon Steel, Plastic	1,2,3
SMPS Assembly	Samsung	V044-0004XA2 V M 1-Phase Type A, Carbon Steel, Plastic	1,2,3
		V044-0005AA 1-Phase Type B, Carbon Steel, Plastic	1,2,3
		V808-00066A White, Carbon Steel, 298 lbs	Inter
Rack Frame	Samsung	V808-00068A Black, Carbon Steel, 298 lbs	1,2,3
Junction Box	Samsung	571563P1 Carbon Steel, 30.5 lbs, 10.0" High	1,3
		PNA BUILDING COD	

TRU Compliance, by Structural Integrity Associates, Inc. 844-TRU-0200 | info@trucompliance.com

2000359-CR-001-R0



Manufacture Model Line:	er: Vertiv Corporation Li-Ion Battery Cabine	et				
υυτ	Unit Description	Report Number	Testing Laboratory	S _{DS}	z/h	I _P
1	Li-Ion Battery Cabinet 17 Modules w/ Junction Box (Standalone)	2000359-TR-001-R0	ETL	1.70 2.15	1.0 0.0	1.5
2	Li-Ion Battery Cabinet 11 Modules (Standalone)	2000359-TR-001-R0	ETL	1.70 2.15	1.0 0.0	1.5
3	Li-Ion Battery Cabinet 34 Modules (Ganged)	2000359-TR-001-R0	ETL	1.70 2.15	1.0 0.0	1.5
	Level and the second seco	HCAi	I LA			
	REU	OSP-0674	ZCE			
	0	BY: Mohammad Alia				
		DATE: 03/08/202	2			
	E		5			
			Str.			
		A BUILDING				
Notes:						

2000359-CR-001-R0



	vertiv Co	rporation							1
Model Line:	Li-Ion Ba	ttery Cabinet						JUT	L
Model Number:	PHR3462	-001A		Serial Nı	umber:	N/A			
Product Construe	ction Summary	:							
14 ga. Carbon Ste	el Cabinet								
Options/Subcom	-	-							
-		00XA, (8) EM2031AE00 ne: V808-00068A, Jun			Assemb	oly: V044-0	006XA, S.	J94-00238	3B, V044
JUU4XA, VU44-UUU	13AA, Rack fiai i	ne: v808-00068A, Jun	CION BOX: 571563P1						
		PFC	RCODEC	ONA					
		NED	UUT Properties					(
Weight (lb)	Danath	Dimension (in)	liste hal		7	st Natural			
	Depth	Width	Height ¹		-Back		-Side	Vertical 16.0	
101021.026.0Total height includes the height of the junction be			<u>OSP91.0674</u>	6	.2	5	.7	16	5.0
Total neight incl	udes the height		Passed Seismic Run	Informa	tion				
Building Code		Test Criter		z/h	Ι _Ρ	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (
CBC	2019	ICC-ESAC1	56 03/0 8/202 2.15	2 ^{1.0} 0.0	1.5	2.77	2.08	1.43	0.57
CDC			2.15	0.0					
	etails:		33352 + 3333533		2				
	etails:	E Con					100		
Test Mounting De	etails:	PALA		CODE			-		
	etails:	PRALA	BUILDING	cost					
	etails:	CRAIN A	BUILDING	cook			*		
	etails:		BUILDING	cook					
	etails:		BUILDING	cook					
	etails:		BUILDING	cor					
	etails:		BUILDING	COD					
	etails:		BUILDING	cost					
	etails:		BUILDING	COD					
	etails:		BUILDING	COV					
	etails:		BUILDING	COD					
	etails:		BUILDING	COV					

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

2000359-CR-001-R0



Manufacturer:	Vertiv Co	rporation						n
Model Line:	Li-Ion Ba	ttery Cabinet					JUT	2
Model Number:	PHR2042	-001A		Serial Number:	N/A			
Product Construe	ction Summary:	:						
14 ga. Carbon Ste	el Cabinet							
Options/Subcom			0YA, SMU: V049-0011X	A SMPS Assem	hlv: V044-0	OOGXA S	194-00238	R V04
-		ne: V808-00068A	01A, SMO. 1049-0011/	, JMF 3 A33 CIII	DIY. V044-0	00077, 3.	JJ4-00230	D, V04-
,	,		DCODE					
		FC	OK CODE C	DA.				
		NED		MASI				
			UUT Properties					
Weight		Dimension (in)			st Natural Frequen			
(lb)	Depth	Width	OSHeight74	Front-Back		-Side	Side Vertica	
763	21.0	26.0	81.0	7.0	7	.0	16.0	
			t Passed Seismic Run					
Buildir	ng 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} (
CBC	2019	ICC-ES AC	156 03/08/202 2.15	$\frac{1.0}{0.0}$ 1.5	2.77	2.08	1.43	0.57
Test Mounting De	tails:							
.. <i>.</i> . <i>..</i> . <i>.</i> . <i>..</i> . <i>.</i> . <i>..</i> . <i>..</i> . <i>..</i> . <i>..</i> . <i>...</i> . <i>...</i> . <i>...</i> . <i>...</i> . <i>...............</i>						the local distance in the second s		
		PAR						
		·	PLUE DING		7	and a		
	and the		DOILDING					
		- 87 D				N HOUSE		
						Contraction in the		
	12	HEE	12					
				1.				
			-					
						<u> </u>		

Base Mounted - Rigid: Four (4) 5/8" Grade 5 bolts with four (4) plate washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

2000359-CR-001-R0



Manufacturer:	Vertiv Co	rporation						.		`
Model Line:	e: Li-Ion Battery Cabinet								JUT	3
Model Number:	PHR3462	-001A (2)			Serial Nu	ımber:	N/A			
Product Construc	tion Summary:	·								
14 ga. Carbon Ste	el Cabinet									
Options/Subcom	ponent Summa	ry:								
Battery Modules	: (18) EM2031AE	00XA, (16) EM2031AE	00YA, SMU	: V049-001	11XA, SM I	PS Asse	mbly: V044	4-0006XA	, SJ94-002	38B,
V044-0004XA, V04	4-0005AA, Rack	x Frame: V808-00068A	, Junction	Box: 571	563P1					
		OFC	RCO	DEC	01.					
		NED	UUT Pro	perties	MD/					
Weight		Dimension (in)				7	st Natural			
(lb)	Depth	Width	000	ght ¹		-Back		-Side	Vertical	
1989	21.0	52.0				.6	6	.0	8	.4
The total height	includes the he	ig <mark>ht of t</mark> he junction bo			1000					
D		UUT Highest	101101111							
Buildin	ig Code	Test Crite	ria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (§
CBC	2019	ICC-ESAC1	56 03/0	$\frac{1.70}{2.15}$	$2^{1.0}_{0.0}$	1.5	2.77	2.08	1.43	0.57
Test Mounting De	tails			2.15	0.0	0				
				R G	conf					
						-				

Base Mounted - Rigid: Eight (8) 5/8" Grade 5 bolts with eight (8) 5/8" plate washers. The two (2) PHR3462-001A units are ganged together using twelve (12) M10 Grade 8.8 bolts, washers and nuts through the holes on the sides of the units. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.