



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0845

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: APM2 FR1 UPS

Product Model Number(s): Varies. See Attachment

Product Category: UPS and Batteries

Product Sub-Category: UPS

General Description: Uninterruptible Power Supply with Lithium-ion or VRLA batteries and Modular Battery Cabinet.

Mounting Description: Base Mounted Rigid -

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Pre Compliance

Contact Person: Galen Reid

Mailing Address: 36 SW Wall Street, Bend, OR 97702

Telephone: (541) 241-2310 Email: galen@go-pre.com

Title: Principal & Program Manager



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

Company Name: PRE COMPLIANCE

Name: Andrew Coughlin

California License Number: S6082

Mailing Address: 36 SW Wall Street, Bend, OR 97702

Telephone: (415) 635-8461

Email: Andy@go-pre.com

Certification Method

☐ GR-63-Core

☒ ICC-ES AC156

☐ IEEE 344

☐ IEEE 693

☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: CHINA TELECOMMUNICATION TECHNOLOGY LABS (CTTL)

Contact Person: Ying Deng

Mailing Address: 299 Tengfei Road, Lianchi District, Baoding City Hebei Province 000000

Telephone: (8603) 126-7989

Email: dengying1@caict.ac.cn

DATE: 04/24/2025



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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY



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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.00 at $z/h=1$; 0.72 at $z/h=0$

SDs (Design spectral response acceleration at short period, g) = 1.33 at $z/h=1$; 1.61 at $z/h=0$

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

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 04/24/2031

Date: 4/24/2025

Name: Timothy Piland

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 COMPONENTS

CBC 2022

Mounting Configuration: Base Mounted - Rigid

Modular EBC - With or Without Side Panel

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Manufacturer: Vertiv Corporation
Product Type: UPS
Model Line: APM2

Seismic Parameters

$S_{DS} = 1.33g$ for $z/h=1$

$S_{DS} = 1.61g$ for $z/h=0$

$I_p = 1.5$

Building Codes

CBC 2022

UPS Model Nomenclature

Placeholder	Description	Digit(s)	Option
1-2	Product Line	56	APM2
3	System Type	S	SMS (Single Module System)
		M	MMS (Multi Module System)
4	Voltage and Wiring	C	208V 4-wire
		Y	220V 4-wire
		M	380V 4-wire
		T	400V 4-wire
		E	415V 4-wire
		A	480V 3-wire
		O	480V 4-wire
5-7	Maximum Nameplate Rating (kVA,kW)	010	010
		015	015
		020	020
		025	025
		030	030
		040	040
		045	045
		050	050
		060	060
		075	075
		080	080
		090	090
		100	100
		120	120
		140	140
		150	150
		180	180
		200	200
		225	225
		240	240
		250	250
		300	300
		360	360
		400	400



Pre No. CC241583-01-R0

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENTS

Manufacturer: Vertiv Corporation
Product Type: UPS
Model Line: APM2

Seismic Parameters

$S_{DS} = 1.33g$ for $z/h=1$
 $S_{DS} = 1.61g$ for $z/h=0$

$I_p = 1.5$

Building Codes

CBC 2022

UPS Model Nomenclature

Placeholder	Description	Digit(s)	Option
5-7	Maximum Nameplate Rating (kVA,kW)	420	420
		480	480
		500	500
		540	540
		600	600
8	Configured Rating (kVA,kW)	A	010
		B	015
		C	020
		D	025
		E	030
		F	040
		G	045
		H	050
		J	060
		K	075
		L	080
		M	090
		N	100
		P	120
		Q	140
		R	150
		S	180
		T	200
		U	225
		V	240
		W	250
		X	300
		Y	360
		Z	400
		1	420
		2	480
		3	500
		4	540
		5	600



PRE COMPLIANCE

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENTS

Pre No. CC241583-01-R0

Manufacturer: Vertiv Corporation

Product Type: UPS

Model Line: APM2

Seismic Parameters

$S_{DS} = 1.33g$ for $z/h=1$

S_{DS} = 1.61g for z/h=0

$$I_p = 1.5$$

Building Codes

CBC 2022

UPS Model Nomenclature

[illegible]

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENTS

Manufacturer: Vertiv Corporation
Product Type: UPS
Model Line: APM2

Seismic Parameters

 $S_{DS} = 1.33g$ for $z/h=1$
 $S_{DS} = 1.61g$ for $z/h=0$
 $I_p = 1.5$

Building Codes

CBC 2022

Modular EBC Model Nomenclature

Placeholder	Description	Digit(s)	Option
1-2	Product Line	56	APM2
3-4	Battery Pack Type	BM	Battery Modular
5-7	Rating (kVA)	010	10 kVA
		015	15 kVA
		020	20 kVA
		025	25 kVA
		030	30 kVA
		040	30 kVA
		045	45 kVA
		050	50 kVA
		060	60kVA
		075	75kVA
		080	80 kVA
		090	90 kVA
		100	100 kVA
8	Operating Voltage	120	120 kVA
		C	208v 4 wire
		Y	220v 4 wire
		A	480v 3 wire
		O	480v 4 wire
		E	415v 4wire
9	Battery Module Type	T	400v 4 wire
		S	Standard VRLA Module
10-11	Battery Count	NN	No Battery
		02	Two (2) VRLA
		04	Four (4) VRLA
		06	Six (6) VRLA
		08	Eight (8) VRLA
		10	Ten (10) VRLA
		12	Twelve (12) VRLA
		14	Fourteen (14) VRLA
		16	Sixteen (16) VRLA
		18	Eighteen (18) VRLA
		20	Twenty (20) VRLA



Manufacturer: Vertiv Corporation
Product Type: UPS
Model Line: APM2

$S_{DS} = 1.33g$ for $z/h=1$

$$I_p = 1.5$$

CBC 2022

[illegible]

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

Manufacturer: Vertiv Corporation
Product Type: UPS
Model Line: APM2

Seismic Parameters
 $S_{DS} = 1.33g$ for $z/h=1$
 $S_{DS} = 1.61g$ for $z/h=0$
 $I_p = 1.5$

Building Codes
CBC 2022

TABLE 2

Table Description: Electrical Components

Component (Manufacturer)	Model	Description	Notes	UUT
Power Module (Vertiv)	PM30-C	Function Module,APM 0060kMA46FY02Z1,PM30-C		1,2
Bypass Module (Vertiv)	APM 0120kBPS01	Function Module,APM 0120kMH16FY02Z3,Bypass module		1,2
Battery Module (Vertiv)	APM 0120kBSI02	120kVA lead-acid battery module		1,2, 3,4
Centralized control module (Vertiv)	APM 0600kCMS01	Centralized control module		1,2
Functional Module (Vertiv)	APM 0600kBMS01	APM Lead acid battery collection module		3,4
Current Sensor (LEM)	LEM-HAS-300S-/SP54	Current Sensor O/L $\pm 4V-300A$		3,4
Circuit Breaker (ABB)	SACE Tmax XT4H 250	Circuit Breaker Devices,S/N CE51185448		1,2
LCD Display Module (Vertiv)	APM 0600kMK16FN02SZ16	LCD Display Module		1,2
Circuit Breaker (LS)	UTS400HT ATU 400A 3P UL	400A Adjustable thermal-magnetic trip circuit breaker		3,4
Industrial Frequency Transformer (Tefute Electromagnetic Technology Co., Ltd.)	APM 0600kTK56FN02ST1	Industrial Frequency Transformer, APM 0600kTK56FN02ST1,350W-fan transformer		1,2
Battery Collection Module (Vertiv)	APM 0060kMA46FY02Z7	Function Module,APM 0060kMA46FY02Z7,120KVA,Battery collection module		1,2



COMPLIANCE

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

Pre No. CC241583-01-R0

Manufacturer: Vertiv Corporation

Product Type: UPS

Model Line: APM2

Seismic Parameters

$S_{DS} = 1.33g$ for $z/h=1$

$S_{DS} = 1.61g$ for $z/h=0$

$$I_p = 1.5$$

Building Codes

CBC 2022

TABLE 2

Table Description: Electrical Components

[illegible]



SPECIAL SEISMIC CERTIFICATION TESTING SUMMARY



UUT 1

Test Report# 24T04X801818

Highest Passed Test Level

Lowest Natural Frequency (Hz)

Construction/Option Summary

Carbon steel frame and cladding

List of Included Subcomponents

Model #

Power Module	PM30-C
Bypass Module	APM 0120kBPS01
Centralized Control Module	APM 0600kCMS01
Circuit Breaker	SACE Tmax XT4H 250
LCD Display Module	APM 0600kMK16FN02SZ16
Industrial Frequency Transformer	APM 0600kTK56FN02ST1
Battery Collection Module	APM 0060kMA46FY02Z7
Lithium Battery Module	APM 0120kBLI01
Ground Fault Module	APM 0060kMA46FY02Z5
Rear air-out Module	APM 0060kAF01
IS-UNITY-DP CARD	IS-UNITY-DP
AC Fan	32011124
Input Fuse	19031022

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 2

Manufacturer: Vertiv Corporation
Model Line: APM2
Model Number: 56SC060JRH4N000
Serial Number: N/A

S_{DS}	z/h	I_p	$A_{\text{flx-h}}$	$A_{\text{rig-h}}$	$A_{\text{flx-v}}$	$A_{\text{rig-v}}$
1.33	1	1.5	2.13	1.60	1.08	0.43
1.61	0					

Depth (in)	Width (in)	Height (in)	Weight (lbs.)
40.6	23.6	78.7	2077

Front-Back	Side-Side	Vertical
11.72	4.30	22.66

CBC 2022

ICC-ES AC156

Carbon steel frame and cladding

Power Module

PM30-C

Bypass Module

APM 0120kBPS01

Centralized Control Module

APM 0600kCMS01

Circuit Breaker

SACE Tmax XT4H 250

LCD Display Module

APM 0600kMK16FN02SZ16

Intelligent Lead Acid Bat

Smart Lead Acid Battery Module

APM 0120kBSI02

Industrial Frequency Transformer

APM 0600kTK56FN02ST1

Battery Collection Module

APM 0060kMA46FY02Z7

Ground Fault Module

APM 0060kMA46FY02Z5

Rear air-out Module

APM 0060kAF01

IS-UNITY-DP CARD

IS-UNITY-DP

AC Fan

32011124

Input Fuse

19031022

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 3

Manufacturer: Vertiv Corporation
Model Line: APM2
Model Number: 56BM120OS28L
Serial Number: N/A

S_{DS}	z/h	I_p	$A_{\text{flx-h}}$	$A_{\text{rig-h}}$	$A_{\text{flx-v}}$	$A_{\text{rig-v}}$
1.33	1	1.5	2.13	1.60	1.08	0.43
1.61	0					

Depth (in)	Width (in)	Height (in)	Weight (lbs.)
40.6	23.6	78.7	2258

Front-Back	Side-Side	Vertical
8.60	3.52	23.44

CBC 2022

ICC-ES AC156

Carbon steel frame and cladding

Battery Module	APM 0120kBSI02
Functional Module	APM 0600kBMS01
Current Sensor	LEM-HAS-300S-/SP54
Circuit Breaker	UTS400HT ATU 400A 3P UL

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 4

Manufacturer: Vertiv Corporation
Model Line: APM2
Model Number: 56BM1200S32S
Serial Number: N/A

S_{DS}	z/h	I_p	$A_{\text{flx-h}}$	$A_{\text{rig-h}}$	$A_{\text{flx-v}}$	$A_{\text{rig-v}}$
1.33	1	1.5	2.13	1.60	1.08	0.43
1.61	0					

Depth (in)	Width (in)	Height (in)	Weight (lbs.)
40.6	23.6	78.7	2800

Front-Back	Side-Side	Vertical
10.55	3.52	19.92

CBC 2022

ICC-ES AC156

Carbon steel frame and cladding

- Battery Module
- Functional Module
- Current Sensor
- Circuit Breaker

APM 0120kBSI02

APM 0600kBMS01

LEM-HAS-300S-/SP54

UTS400HT ATU 400A 3P
UL

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.