APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0698

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Schneider Electric

Manufacturer's Technical Representative: Hao Ding

Mailing Address: 330 Weakley Ln., Smyrna, TN 37167

Telephone: (561) 848-0396 Email: hao.ding@se.com

Product Information

Product Name: UPS and Batteries

Product Type: Batteries

Product Model Number: Galaxy Lithium Ion Battery Cabinet

General Description: Li-ion Battery Cabinet with 10, 13, 14, 16, or 17 modules.

Mounting Description: Rigid, Floor Mounted

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Structural Integrity Associates, Inc.

Contact Person: Galen Reid

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

Telephone: (541) 604-7225 Email: greid@structint.com

Title: Manager, TRU Compliance

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: CHINA TELECOMMUNICATION TECHNOLOGY LABS (CTTL)

Contact Person: Lanfang Cui

Mailing Address: No. 299 Tengfei Road, Industrial Park, Lianchi District, Baoding, Hebei China

Telephone: +86 0312-6798950 Email: cuilanfang@caict.ac.cn

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.44 (SDS = 2.0); 1.13 (SDS = 2.5)

S_{DS} (Design spectral response acceleration at short period, g) = 2.0 (z/h = 1); 2.5 (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 05/27/2028

Date: 5/27/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

2200264-CR-001-R1

TRU COMPLIANCE

Manufacturer: Schneider Electric
Model Line: Galaxy Lithium Ion Battery Cabinet

TABLE 1

Certified Product Construction Summary:
Carbon steel cabinet

Certified Options Summary:
10, 13, 14, 16, or 17 Li-ion battery modules. Standalone or Ganged

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}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Galaxy Lithium Ion Battery Cabinets	LIBSESMG10UL	23.2	25.6	77.6	700	10 Batteries	Interp.
	LIBSESMG10IEC	23.2	25.6	77.6	700	10 Batteries	Interp.
	LIBSESMG13UL	23.2	25.6	77.6	866	13 Batteries	Interp.
	LIBSESMG13IEC	23.2	25.6	77.6	866	13 Batteries	2
	LIBSESMG14UL	23.2	25.6	77.6	923	14 Batteries	Interp.
	LIBSESMG14IEC	23.2	25.6	77.6	923	14 Batteries	Interp.
	LIBSESMG16UL	23.2	25.6	77.6	1036	16 Batteries	Interp.
	LIBSESMG16IEC	23.2	25.6	77.6	1036	16 Batteries	Interp.
	LIBSESMG17UL	23.2	25.6	77.6	1069	17 Batteries	3
	LIBSESMG17IEC	23.2	25.6	77.6	1069	17 Batteries	1,3

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

2200264-CR-001-R1

TRU COMPLIANCE

Manufacturer: Schneider Electric
Model Line: Galaxy Lithium Ion Battery Cabinet
Table Description: Electrical Components

TABLE 2

Building Code: CBC 2019
Seismic Certification Limits: S_{DS} = 2.0 g z/h = 1.0; S_{DS} = 2.5 g z/h = 0.0; I_P = 1.5

Component Type	Manufacturer	Model	Description	Notes	UUT
Molded Case Circuit Breaker	Schneider Electric	LV438279	IEC Breaker		1,2,3
		LLF37060D33	UL Breaker		3
Switchgear Box	Schneider Electric	0N-87889	IEC Switchgear Box		1,2,3
		0N-2191	UL Switchgear Box		3
Battery Modules	Samsung SDI	LIBSMG95MODA	Battery Module Type A		1,2,3
		LIBSMG95MODB	Battery Module Type B		1,2,3
SMPS Box	Schneider Electric	0N-2192	SMPS Box IEC		1,2,3
		0N-1588	SMPS Box UL		3

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200264-CR-001-R1

Manufacturer: Schneider Electric

Model Line: Galaxy Lithium Ion Battery Cabinet

UUT	Unit Description	Report Number	Testing Lab	Year Tested	ISO 17025 Accredited?	S_{DS}	z/h	I_P
1	LIBSESMG17IEC	B20X80867	China Telecommunication Technology Labs	2020	Yes	2.0 2.5	1.0 0.0	1.5
2	LIBSESMG13IEC	B20X80868	China Telecommunication Technology Labs	2020	Yes	2.0 2.5	1.0 0.0	1.5
3	LIBSESMG17IEC + LIBSESMG17UL	B21X80065	China Telecommunication Technology Labs	2021	Yes	2.0 2.5	1.0 0.0	1.5

Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200264-CR-001-R1

UUT 1

Manufacturer: Schneider Electric
Model Line: Galaxy Lithium Ion Battery Cabinet
Model Number: LIBSESMG17IEC ***Serial Number:*** N/A

Product Construction Summary:
Carbon steel cabinet

Options/Subcomponent Summary:
17 battery modules (8 Type A, 9 Type B), LV438279 Molded Case Circuit Breaker, 0N-87889 IEC Switchgear Box, 0N-2192 SMPS Box IEC

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,069	23.2	25.6	77.6	14.8	11.9	>33.3

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	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

Rear Seismic BKT

Front Seismic BKT

UUT was rigid base mounted to the shake table using (5) Grade 8.8 M12 Bolts in the front bracket (PN: 870-51164A), and (4) Grade 8.8 M12 Bolts in the rear bracket (PN: 870-51147).
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200264-CR-001-R1

UUT 2

Manufacturer: Schneider Electric
Model Line: Galaxy Lithium Ion Battery Cabinet
Model Number: LIBSESMG13IEC ***Serial Number:*** N/A

Product Construction Summary:
Carbon steel cabinet

Options/Subcomponent Summary:
13 battery modules (6 Type A, 7 Type B), LV438279 Molded Case Circuit Breaker, 0N-87889 IEC Switchgear Box, 0N-2192 SMPS Box IEC

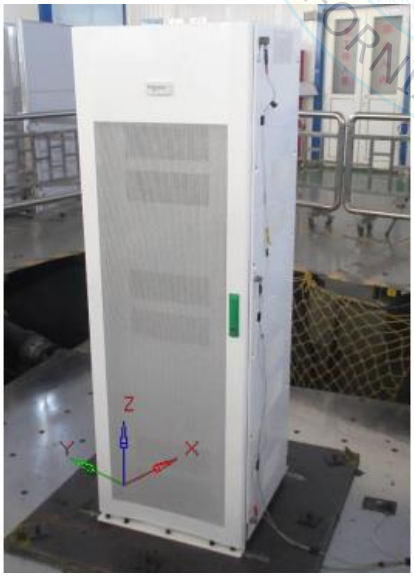
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
866	23.2	25.6	77.6	14.8	11.9	>33.3

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	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



Rear Seismic BKT

Front Seismic BKT

UUT was rigid base mounted to the shake table using (5) Grade 8.8 M12 Bolts in the front bracket (PN: 870-51164A), and (4) Grade 8.8 M12 Bolts in the rear bracket (PN: 870-51147).
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200264-CR-001-R1

UUT 3

Manufacturer:	Schneider Electric		
Model Line:	Galaxy Lithium Ion Battery Cabinet		
Model Number:	LIBSESMG17IEC + LIBSESMG17UL	***Serial Number:***	N/A

Product Construction Summary:

Carbon steel cabinet

Options/Subcomponent Summary:

17 battery modules per section (8 Type A, 9 Type B), LV438279 Molded Case Circuit Breaker, LLF37060D33 Molded Case Circuit Breaker, 0N-87889 IEC Switchgear Box, 0N-2191 UL Switchgear Box, 0N-2192 SMPS Box IEC, 0N-1588 SMPS Box UL

UUT Properties

Weight (lb)[1]	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
2,138	23.2	51.2	77.6	12.1	12.9	>33.3

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	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

[1]Combined weight of ganged cabinets.

Rear Seismic BKT

Front Seismic BKT

UUT was rigid base mounted to the shake table using (10) Grade 8.8 M12 Bolts in the front brackets (PN: 870-51164A), and (8) Grade 8.8 M12 Bolts in the rear brackets (PN: 870-51147)

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

Contents were included in testing per operating conditions.