



APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP – 0101-10

Check whether application is: NEW RENEWAL

1.0 Emerson Network Power Bill Williams
Manufacturer *Manufacturer's Technical Representative*
1050 Dearborn Drive, Columbus, OH 43229
Mailing Address
(614) 888-0246 bill.williams@emerson.com
Telephone *E-mail Address*

2.0 Liebert UPS Rack and Internal Components UPS Rack and System
Product Name *Product Type*
Liebert DCM DK422448IBC UPS Rack. (Refer to attachment for full listing of internal components.)
Product model No (List all unique product identification numbers and/or serial numbers)
General Description: 24" wide X 79" tall X 51" deep uninterruptible power supply rack weighting approximately 500kg. Internal components include batteries, UPS units and PDU as listed in the attachment. Mounting locations of internal components and additional allowable mass are listed in the attachment.

3.0 Tobolski Watkins Engineering, Inc. Matthew J. Tobolski, Ph.D., P.E.
Applicant Company Name *Contact Person*
3710 Ruffin Road, San Diego, CA 92123 USA
Mailing Address
(858) 381-5843 mtobolski@tobolskiwatkins.com
Telephone *E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant

September 17, 2010

Date

President and CEO
Title

Tobolski Watkins Engineering, Inc.
Company Name

4.0 Registered Design Professional Preparing the Report



Tobolski Watkins Engineering, Inc.

Company Name

Matthew J. Tobolski, Ph.D., P.E.
Contact Name

C 72806
California License Number

3710 Ruffin Road, San Diego, CA 92123
Mailing Address

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Telephone

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E-mail Address

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

Tobolski Watkins Engineering, Inc.

Company Name

Derrick A. Watkins, S.E.
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S 5257
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3710 Ruffin Road, San Diego, CA 92123
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Anchorage Pre-Approval

6.0

- Anchorage is pre-approved under OPA-
(Separate application for anchorage pre-approval is required)
- Anchorage is not Pre-approved

Certification Method

7.0

- Testing in accordance with:
 - ICC-ES AC-156
 - Other (Please Specify):

- Analysis
- Experience data
- Combination of Testing, Analysis, and/or Experience Data (Please Specify):

Testing Laboratory (if applicable)

8.0

Clark Dynamic Test Laboratory
Company Name

J.R. Antenucci, Test Manager
Contact Name

1801 Route 51 South, Jefferson Hills, PA 15025
Mailing Address

(412) 382-5500
Telephone

jrantenucci@clarkdynamic.com
E-mail Address



Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: Yes No

- Design Basis of Equipment or Components (F_p/W_p) = 1.44g
- S_{DS} (Spectral response acceleration at short period) = 2.00g
- a_p (In-structure equipment or component amplification factor) = 1
- R_p (Equipment or component response modification factor) = 2.5
- I_p (Importance factor) = 1.5
- z/h (Height factor ratio) = 1.0
- Equipment or Component fundamental period(s) = See Attachment
- Building period limits (if any) = None
- Overall dimensions and weight (or range) = See Attachment

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: Yes No

- Design Basis of Equipment or Components (V/W) =
- S_{DS} (Spectral response acceleration at short period) =
- S_1 (Spectral response acceleration at 1 second period) =
- R (Response modification coefficient) = 1.0
- Ω_0 (System overstrength factor) = 1.0
- C_d (Deflection amplification factor) = 1.0
- I_p (Importance factor) = 1.5
- Height to Center of Gravity above base =
- Equipment or Component fundamental period(s) = Sec
- Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: Yes No

10.0 List of attachments supporting the special seismic certification of equipment or components:

- Test Report Drawings Manufacturer's Catalog
- Calculations Others (Please Specify):

11.0 OSHPD Approval (For Office Use Only)

Chris Tokas

9/20/2010

December 31, 2016

Chris Tokas, SFGH

S_{DS} (g) = **2.0** z/h = **1.0**

Condition of Approval (if any):

Special Seismic Certification Valid Up to

2/10

ATTACHMENT A: SEISMIC QUALIFICATION INFORMATION

TABLE 1: SEISMICALLY QUALIFIED RACKS					
RACK ENCLOSURE					
Model	Width (in)	Depth (in)	Height (in)	Max Weight (lb)	Notes
DCM DK422448IBC	24	51	79	1,505	UUT 1 UUT 2

TABLE 2: SEISMICALLY QUALIFIED RACK MOUNTED UPS					
Liebert GXT3 208V, 500 VA to 10,000 VA					
Model	Width (in)	Depth (in)	Height (in)	Weight (lb)	Notes
GXT3-500RT120	16.9	19.7	3.4	44	Interpolated
GXT3-700RT120	16.9	19.7	3.4	44	Interpolated
GXT3-1000RT120	16.9	19.7	3.4	44	Interpolated
GXT3-1000MT120	16.9	15.4	8.9	44	Interpolated
GXT3-1500RT120	16.9	19.7	3.4	49	In UUT 1
GXT3-2000RT120	16.9	19.7	3.4	53	Interpolated
GXT3-3000RT120	16.9	23.7	3.4	62	In UUT 1
GXT3-5000RT208	16.9	26.1	6.8	131	Interpolated
GXT3-6000RT208	16.9	26.1	6.8	131	In UUT 2
GXT3-6000RTL630	16.9	22.6	8.5	138	Interpolated
GXT3-8000RT208	16.9	26.5	10.3	224	Interpolated
GXT3-10000RT208	16.9	26.5	10.3	224	In UUT 2
Liebert PSI/PSI XR 120VAC, 1,000 VA to 3,000 VA					
PS1000RT3-120	17.3	16.2	3.5	43	In UUT 2
PS1000RT3-120W	17.3	16.2	3.5	43	Interpolated
PS1500RT3-120	17.3	16.2	3.5	47	Interpolated
PS1500RT3-120W	17.3	16.2	3.5	47	Interpolated
PS2200RT3-120	17.3	25.9	3.5	76	Interpolated
PS2200RT3-120W	17.3	25.9	3.5	76	Interpolated
PS3000RT3-120	17.3	25.9	3.5	84	Interpolated
PS3000RT3-120W	17.3	25.9	3.5	84	Interpolated
PS1000RT3-120XR	17.3	19.3	3.5	56	Interpolated
PS1000RT3-120XRW	17.3	19.3	3.5	56	Interpolated
PS1500RT3-120XR	17.3	19.3	3.5	62	Interpolated
PS1500RT3-120XRW	17.3	19.3	3.5	62	Interpolated
PS2200RT3-120XR	17.3	27.6	3.5	92	Interpolated
PS2200RT3-120XRW	17.3	27.6	3.5	92	Interpolated
PS3000RT3-120XR	17.3	27.6	3.5	105	Interpolated
PS3000RT3-120XRW	17.3	27.6	3.5	105	In UUT 2

ATTACHMENT A: SEISMIC QUALIFICATION INFORMATION

TABLE 3: SEISMICALLY QUALIFIED RACK MOUNTED BATTERIES					
Model	Width (in)	Depth (in)	Height (in)	Weight (lb)	Notes
GXT3-48VBATT	16.9	19.7	3.3	58	In UUT 1
GXT3-72VBATT	16.9	23.7	3.3	84	In UUT 1
GXT3-144VBATT	16.9	26.1	3.3	100	In UUT 2
GXT3-240VBATTUL	16.9	22.6	5.1	95	Interpolated
GXT3-288RTVBATT	16.9	26.5	6.8	172	In UUT 2
PSRT3-24VBXR	17.3	19.3	3.5	64	In UUT 2
PSRT3-48VBXR	17.3	19.3	3.5	64	In UUT 2

TABLE 4: SEISMICALLY QUALIFIED POWER DISTRIBUTION UNITS					
Model	Width (in)	Depth (in)	Height (in)	Weight (lb)	Notes
MPH-NBV27ANXH30	68.1	3.1	1.9	20	In UUT 1
MPH-NBV27NXXH30	68.1	3.1	1.9	20	In UUT 2
PD2-101	74	N/A	5.7	4	Interpolated
PD2-102	74	N/A	5.7	7	Interpolated
PD2-103	74	N/A	5.7	7	Interpolated
PD2-104	74	N/A	5.7	7	Interpolated
PD2-105	74	N/A	5.7	4	In UUT 2
PD2-106	74	N/A	5.7	7	In UUT 2

NOTE: PD2 units are mounted to back of UPS, MPH unit mounted to back of rack

TABLE 5: PERMISSIBLE MOUNTING LOCATION OF INTERNAL COMPONENTS			
Rack Unit Location	GXT3 UPS & Battery	PSI/PSI XR UPS & Battery	Weight/RU
RU 1-2			0
RU 3-22	X	X	30
RU 23-26		X	30
RU 27-40		X	26
RU 41-42			0

- NOTES:**
- Internal components can be installed within other racks with equivalent strength and stiffness, when approved.
 - Internal components can be installed at any RU as indicated by Table 5 so long as the total weight of the rack is less than that specified in Table 1
 - The "Weight/RU" values indicated are for other items that may be mounted within the rack in place of a UPS or battery (not in addition)

ATTACHMENT A: SEISMIC QUALIFICATION INFORMATION

TABLE 6: SEISMIC DEMAND LEVELS				
Unit	S_{DS}	z/h	I_p	(F_p/W_p)
UPS rack and internal Components	2.00	1.00	1.50	1.50

TABLE 7: UUT PROPERTIES				
UUT 1				
Location	Weight (lb)	Lowest Natural Frequency		
		F-B (Hz)	S-S (Hz)	V (Hz)
Center of vertical rail	1,505	7.50	4.30	> 33
Top corner		7.80	4.30	> 33
UUT 2				
Location	Weight (lb)	Lowest Natural Frequency		
		F-B (Hz)	S-S (Hz)	V (Hz)
Center of vertical rail	1,121	6.40	3.90	32
Top corner		6.60	3.90	32

LWA

DCM SEISMIC RACK CONFIGURATION WKW 081810 REV 2

(UUT 2)

42	NOT USED	42	
41		41	
40	PSRT3-48VBXR	40	64 Lbs
39		39	
38	PS3000RT3120XRW	38	105 Lbs
37		37	
36		36	
35	DUMMY WEIGHT (2X)	35	35 Lbs
34		34	
33	DUMMY WEIGHT (2X)	33	35 Lbs
32		32	
31	DUMMY WEIGHT (2X)	31	35 Lbs
30		30	
29	DUMMY WEIGHT (2X)	29	35 Lbs
28		28	
27	DUMMY WEIGHT (2X)	27	35 Lbs
26		26	
25	DUMMY WEIGHT (2X)	25	35 Lbs
24		24	
23		23	8 Lbs
22	GXT3-288RTVBATT	22	172 Lbs
21		21	
20		20	
19	GXT3-10000RT208	19	224 Lbs
18		18	
17		17	
16		16	
15		15	
14	GXT3-144VBATT	14	100 Lbs
13		13	
12	GXT3-6000RT208	12	131 Lbs
11		11	
10		10	
9	PSRT3-24VBXR	9	64 Lbs
8		8	
7	PS1000RT3-120	7	43 Lbs
6		6	
5	NOT USED	5	
4		4	
3		3	
2	NOT USED	2	
1		1	

- 6 Dummy weight shelves
- Ship 20 8.5Lb dummy weighs
12 required; 8 spare
- Ship three spare shelves
- Weights will be installed as shown **AT LAB**
- Make sure all hardware is tight
- Ship extra hardware
- Make sure UPS's are working
- Total load in rack 1113 pounds

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