



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION**

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0169 – 10**

**OSHPD Special Seismic Certification Preapproval (OSP)**

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: **DIMPLEX THERMAL SOLUTIONS**

Manufacturer's Technical Representative: Doug Mathews

Mailing Address: 2625 Emerald Drive, Kalamazoo, MI 49001-4542

Telephone: (800) 968-5665 Email: dmathews@dimplexthermal.com

**Product Information**

Product Name: **KOOLANT KOOLERS WO CHILLERS**

Product Type: Air cooled condensing process chillers

Product Model Number: **See Attachment 1**

(List all unique product identification numbers and/or part numbers)

General Description: Cataloged, air cooled condensing process chillers acceptable for indoor or outdoor use.

Cabinets are constructed of galvanized steel or stainless steel and meet UL Type 4 enclosure rating. Reservoir tanks are constructed of stainless steel. Seismic enhancements made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units

Mounting Description: Rigid base mounted, vibration spring isolated base mounted and rigid wall mounted.

**Applicant Information**

Applicant Company Name: **EASE LLC**

Contact Person: JONATHAN ROBERSON, S.E.

Mailing Address: 5877 Pine Ave, Suite 210, Chino Hills, CA. 91709

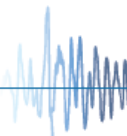
Telephone: (909) 606-7622 Email: j.roberson@easeco.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant:  Date: 2/5/16

Title: Principal Engineer Company Name: **EASE LLC**

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





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

Company Name: EASE LLC

Name: JONATHAN ROBERSON, S.E. California License Number: S4197

Mailing Address: 5877 Pine Ave, Suite 210, Chino Hills, CA. 91709

Telephone: (909) 606-7622 Email: j.roberson@easeco.com

**Supports and Attachments Preapproval**

- Supports and attachments are preapproved under OPM- \_\_\_\_\_  
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

**Certification Method**

- Testing in accordance with:  ICC-ES AC156
- Other (Please Specify): \_\_\_\_\_

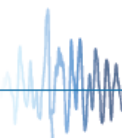
**Testing Laboratory**

Company Name: Environmental Testing Laboratory, Inc.

Contact Name: Brady Richard

Mailing Address: 11034 Indian Trail, Dallas, TX 75229-3513

Telephone: (972) 247-9657 Email: brady@etldallas.com





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**Seismic Parameters**

Design in accordance with ASCE 7-10 Chapter 13:  Yes  No

Design Basis of Equipment or Components ( $F_p/W_p$ ) = See Attachment 1

$S_{DS}$  (Design spectral response acceleration at short period, g) = See Attachment 1 Table 1

$a_p$  (In-structure equipment or component amplification factor) = 2½

$R_p$  (Equipment or component response modification factor) = 2 (Flexible Base); 6 (Rigid Base)

$\Omega_0$  (System overstrength factor) = 2

$I_p$  (Importance factor) = 1.5

$z/h$  (Height factor ratio) = See Attachment 1 Table 1

Equipment or Component Natural Frequencies (Hz) = See Attachment 2

Overall dimensions and weight (or range thereof) = See Attachment 1 Table 1

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15:  Yes  No

Design Basis of Equipment or Components ( $V/W$ ) = \_\_\_\_\_

$S_{DS}$  (Design spectral response acceleration at short period, g) = \_\_\_\_\_

$S_{D1}$  (Design spectral response acceleration at 1 second period, g) = \_\_\_\_\_

$R$  (Response modification coefficient) = \_\_\_\_\_

$\Omega_0$  (System overstrength factor) = \_\_\_\_\_

$C_d$  (Deflection amplification factor) = \_\_\_\_\_

$I_p$  (Importance factor) = \_\_\_\_\_

Height to Center of Gravity above base = \_\_\_\_\_

Equipment or Component Natural Frequencies (Hz) = \_\_\_\_\_

Overall dimensions and weight (or range thereof) = \_\_\_\_\_

Tank(s) designed in accordance with ASME BPVC, 2015:  Yes  No

**List of Attachments Supporting Special Seismic Certification**

Test Report(s)  Drawings  Calculations  Manufacturer's Catalog

Other(s) (Please Specify): SEE ATTACHMENT 1

**OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022**

Signature: M. R. Karim

Date: 8/10/16

Print Name: M. R. Karim

Title: SHFR

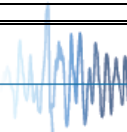
Special Seismic Certification Valid Up to :  $S_{DS}$  (g) = See Above

$z/h$  = See Above

Condition of Approval (if applicable): \_\_\_\_\_

\_\_\_\_\_

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



**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**

**Table 1:**

Manufacturer		DIMPLEX THERMAL SOLUTIONS											
System		KOOLANT KOOLERS WO CHILLERS											
COMPONENT	MODEL NUMBER	APPROX. DIMENSIONS (IN.)			DRY WT (LB.)	MOUNT	BASIS <sup>[1]</sup>	F <sub>p</sub> /W <sub>p</sub>	S <sub>DS</sub>	z/h	a <sub>p</sub>	R <sub>p</sub>	Ω <sub>0</sub>
		W	D	H									
3 Ton Chiller	WO3000-NF-L-M-407C	50	28 1/2	65.25	730	Rigid	UUT-1	1.51	2.1	1	1	2 ½	2
3 Ton Chiller High Ambient	WO3000-NF-L-M-407C-HA	50	28 1/2	65.25	730	Rigid	INT						
5 Ton Chiller	WO5000-NF-L-M-407C	60	37.75	65.25	900	Rigid	INT	1.44 1.13	2.0 2.5	1 0	1 1	2 ½ 2 ½	2 2
7.5 Ton Chiller	WO7500-NF-L-M-407C	60	37.75	65.25	935	Rigid	INT						
10 Ton Chiller	WO2-5000-2P-NF-L-M-407C	109	34.4	76.25	2000	Rigid	INT						
15 Ton Chiller	WO2-7500-2P-NF-L-M-407C	109	34.4	76.25	2000	Rigid	UUT-3						
12 Ton Chiller	WO2-2-3000-2P-NF-L-M-407C	109	34.4	76.25	2200	Rigid	INT						
20 Ton Chiller	WO2-10000-2P-NF-L-M-407C	115	44.25	88.5	2940	Rigid	UUT-A1R						
20 Ton Chiller	WO2-2-5000-2P-NF-L-M-407C	135	44.25	88.5	3500	Rigid	INT						
30 Ton Chiller	WO2-2-7500-2P-NF-L-M-407C	135	44.25	88.5	4000	Rigid	UUT-5						
40 Ton Chiller	WO2-2-10000-2P-NF-L-M-407C	135	44.25	88.5	4185	Rigid	INT						
3 Ton Chiller	WO3000-NF-L-M-407C	50	28 1/2	65.25	730	Flexible	UUT-2						
3 Ton Chiller High Ambient	WO3000-NF-L-M-407C-HA	50	28 1/2	65.25	730	Flexible	INT						
5 Ton Chiller	WO5000-NF-L-M-407C	60	37.75	65.25	900	Flexible	INT	4.50 1.88	2.0 2.5	1 0	2 ½ 2 ½	2 2	2 2
7.5 Ton Chiller	WO7500-NF-L-M-407C	60	37.75	65.25	935	Flexible	INT						
10 Ton Chiller	WO2-5000-2P-NF-L-M-407C	109	34.4	76.25	2000	Flexible	INT						
15 Ton Chiller	WO2-7500-2P-NF-L-M-407C	109	34.4	76.25	2000	Flexible	UUT-4						
12 Ton Chiller	WO2-2-3000-2P-NF-L-M-407C	109	34.4	76.25	2200	Flexible	INT						
20 Ton Chiller	WO2-10000-2P-NF-L-M-407C	115	44.25	88.5	2940	Flexible	UUT-A1S						
20 Ton Chiller	WO2-2-5000-2P-NF-L-M-407C	135	44.25	88.5	3500	Flexible	INT						
30 Ton Chiller	WO2-2-7500-2P-NF-L-M-407C	135	44.25	88.5	4000	Flexible	INT						
40 Ton Chiller	WO2-2-10000-2P-NF-L-M-407C	135	44.25	88.5	4185	Flexible	UUT-A2S						
Remote Display	Carel pGD	6.1	1.2	3.2	< 1	Wall	UUT6						
<i>Mount</i>	<p><b>RIGID (BASE):</b> free-standing, base-mounted condition with the component rigidly attached to a supporting structure and no lateral support above the base.  <b>FLEXIBLE (BASE / SPRING ISOLATOR):</b> a free-standing, base mounted condition with spring isolators positioned between the equipment and supporting structure with or without a dunnage frame.  <b>WALL:</b> unit is fully supported by a vertical wall or partition.</p>												
<i>Notes</i>	<p>1. BASIS:  <ul style="list-style-type: none"> <li>• UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program..</li> <li>• INT (Interpolate/Extrapolate): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line</li> </ul> </p> <p>2. See Table 2 for seismic qualified subcomponents and options.</p>												

**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**

**TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS & OPTIONS**

SUBCOMPONENT	MANUFACTURER	MODEL/PART NO.	DESCRIPTION/RATING	Max. WEIGHT (kg)	BASIS
<b>COMPRESSORS</b>					
Compressor	Sanyo / Panasonic	C-SBN263H8A	Scroll 3 Ton, 3.5 HP, 2.6KW	37	UUT1 / UUT2
Compressor	Sanyo / Panasonic	C-SBN453H8G	Scroll 5.0 Ton, 6.0 HP, 4.5KW	39	INT
Compressor	Sanyo / Panasonic	C-SCN603H8K	Scroll 7.5 Ton, 8.0HP, 6.0KW	67	UUT3 / UUT4 / UUT5
Compressor	Sanyo / Panasonic	C-SCN753H8K	Scroll 10.0 Ton, 10.0HP, 7.5KW	71	UUT-A1R / UUT-A1S / UUT-A2S
<b>PUMPS</b>					
Pump	Walrus	TPHK2T5-5S	3/4 HP Pump	12.7	Extrapolate
Pump	Walrus	TPHK4T5-5S	1-1/2 HP Pump	13.9	UUT1 / UUT2 / UUT3 / UUT4
Pump	Walrus	TPHK4T7-7S	2 HP Pump	14.6	INT
Pump	Walrus	TPHK8T6-3S	1-1/2 HP Pump	24.3	INT
Pump	Walrus	TPHK8T6-4S	3 HP Pump	27	INT
Pump	Walrus	TPHK8T6-5S	3 HP Pump	28	UUT5/UUT-A1R / UUT-A1S / UUT-A2S
<b>FAN MOTORS</b>					
Fan Motor	Marathon	O48A17OF1H	144 mm diameter, 1/2 HP	7	UUT1/UUT2/UUT3/UUT4/UUT5/ UUT-A1R / UUT-A1S / UUT-A2S
<b>FAN BLADE</b>					
16" Fan Blade	Lau	61146601	406 mm diameter	1.1	UUT5/UUT-A1R/UUT-A1S
18" Fan Blade	Lau	61142601	457 mm diameter	0.9	UUT1 / UUT2 / UUT3 / UUT4 / UUT-A1R / UUT-A1S
<b>HEAT EXCHANGERS</b>					
Brazed Plate Heat Exchanger	Kaori	K095x20		7.5	UUT1 / UUT2
Brazed Plate Heat Exchanger	Kaori	K095x30B		9.7	INT
Brazed Plate Heat Exchanger	Kaori	K105x40B		13.1	UUT3 / UUT4
Brazed Plate Heat Exchanger	Kaori	K105x50B		15.5	INT
Brazed Plate Heat Exchanger	Kaori	K205x30C		22.8	UUT-A1R / UUT-A1S
Brazed Plate Heat Exchanger	Kaori	K205x40C		28	UUT5
Brazed Plate Heat Exchanger	Kaori	K205x70C		41	UUT-A2R / UUT-A2S
<b>CONDENSERS</b>					
Condenser	Keeprite	1104615	3-6 Ton	55	UUT1 / UUT2
Condenser	Keeprite	1104619	5 Ton	58	INT
Condenser	Keeprite	1104616	7.5-10 Ton	65	UUT3 / UUT4
Condenser	Keeprite	1104617	15 Ton	94	UUT-A1R / UUT-A1S
Condenser	Keeprite	1104618	20 Ton	120	UUT5 / UUT-A2S

Table continues next page

**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**

**TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS & OPTIONS**

SUBCOMPONENT	MANUFACTURER	MODEL/PART NO.	DESCRIPTION/RATING	Max. WEIGHT (kg)	BASIS
<b>FLOW SWITCH</b>					
Flow Switch	Johnson Controls	F61MB-1C		0.9	UUT1 / UUT2 / UUT3 / UUT4 / UUT5 / UUT-A1R / UUT-A1S
Flow Switch	Johnson Controls	F6261-MAH		0.9	UUT-A2S
<b>LIQUID FLUID LEVEL INDICATOR</b>					
Liquid Level Switch	Harwil	L-21N-11A-1-B		0.2	UUT3 / UUT4 / UUT5
Liquid Level Switch	Harwil	L-21N-11A-2-B-25		0.2	INT
Liquid Level Switch	Harwil	L-21N-11A-2-F-25		0.2	UUT1 / UUT2
Liquid Level Switch	Harwil	L-21N/15A/A/B/1.6		0.2	UUT-A1R / UUT-A1S / UUT-A2S
<b>PRESSURE RELIEF BYPASS VALVE</b>					
Series 69 Pressure Relief Valve	Aquatrol	D1DX70	Series 69 1-1/4", 35-100 PSI	2	UUT3 / UUT4 / UUT5 / UUT-A1R / UUT-A1S / UUT-A2S
Series 69 Pressure Relief Valve	Aquatrol	C1DX70	Series 69 1", 35-100 PSI	1.4	INT
Pressure Relief Valve	Spraying Systems	6815G-3/4-HSS-300	3/4", 300 PSI	0.6	UUT1 / UUT2
<b>ANTI-BACKFLOW KIT</b>					
Solenoid Valve 1"	Asco	8210G004		2	UUT1 / UUT2
Solenoid Valve 1"	Asco	8210G027		2	INT
Solenoid Valve 1-1/4"	Asco	8210G008		2.5	INT
Solenoid Valve 1-1/2"	Asco	8210G056		2.6	UUT3 / UUT4 / UUT-A1R / UUT-A1S / UUT-A2S
Solenoid Valve 2"	Asco	8210G100		4	UUT5
Series 600 Check Valve 1"	Watts	376354		0.6	UUT1, UUT2
Series 600 Check Valve 1-1/4"	Watts	376355		1	INT
Series 600 Check Valve 1-1/2"	Watts	376356		1.4	UUT3/UUT4 / UUT-A1R / UUT-A1S / UUT-A2S
Series 600 Check Valve 2"	Watts	376357		2	UUT5
<b>CONTROLLER</b>					
Controller	Carel	pCO1		0.4	UUT1 / UUT2 / UUT3 / UUT4 / UUT5 / UUT-A1R / UUT-A1S / UUT-A2S
Controller	Carel	PCOxs		0.4	UUT1 / UUT2 / UUT3 / UUT4
Condenser Fan Speed Control	Johnson Controls	P266		1	UUT1 / UUT2 / UUT3 / UUT4 / UUT5 / UUT-A1R / UUT-A1S / UUT-A2S

**Notes**

1. BASIS:
  - UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program.
  - INT (Interpolate/Extrapolate): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line.
2. Certification in this table is limited subcomponents identified when installed as part of a complete assembly of the equipment defined in Table 1.
3. Table excludes all Electrical Controllers, Switches, Transformers, Circuit Breakers and Fuses up to 10 lbs. or 10 amperes, except as noted.

**ATTACHMENT 2: TEST SPECIMEN SUMMARY**

<b>UUT- 1      3 Ton Chiller / Rigid Base</b>								
<b>MANUFACTURER:</b>	Dimplex Thermal Solutions							
<b>IDENTIFICATION:</b>	WO-3000-NF-L-M-407C							
<b>DESCRIPTION:</b>	<p>Single Refrigeration Circuit &amp; Single Fluid Circuit Compliant with UL1995 standards Controller: Carel PCOxs Compressor : (1) Sanyo C-SBN263H8A 3 Ton Pump : (1) Walrus TPK4T5-5S 2.0 kW Fan Motor: (1) ½ HP Marathon 048A170F1H Fan Blade: (1) 18-in Lau 61142601 Heat Exchanger: (1) Kaori K095x20 Condenser: (1) 3-6 Ton Keeprite 1104615 Refrigerant: 407c Enclosure: Stainless steel enclosure by Dimplex Control Cabinet: Stainless steel NEMA 4 electrical enclosure by Saginaw Control &amp; Engineering Tank: 40 gallon, Stainless Steel, Sealed w/ air vent Anti-backflow kit, pressure relief bypass valve, flow switch, &amp; low fluid tank level indicator. Unit full of contents during test.</p>							
<b>MOUNTING:</b>	Rigid Base mount w/ (4)-½" dia. Grade 5 bolts							
<b>PROPERTIES:</b>								
DIMENSIONS (in.)			Weight (lb.) Dry / Operating	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height		Front-Axis	Side-Axis	Vert-Axis	Off-Axis	
51	27.5	60.75	685 / 1100	5.8	3.3	10.8	2.8	
<b>SHAKE TABLE TEST PARAMETERS</b>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC156	2.1	1	1.5	3.36	2.52	1.41	0.57
Unit maintained structural integrity and remained functional per manufacturer requirement								



<b>UUT- 2      3 Ton Chiller / Spring Isolator</b>								
<b>MANUFACTURER:</b>	Dimplex Thermal Solutions							
<b>IDENTIFICATION:</b>	WO-3000-NF-L-M-407C							
<b>DESCRIPTION:</b>	<p>Single Refrigeration Circuit &amp; Single Fluid Circuit Compliant with UL1995 standards Controller: Carel PCOxs Compressor : (1) Sanyo C-SBN263H8A 3 Ton Pump : (1) Walrus TPK4T5-5S 2.0 kW Fan Motor: (1) ½ HP Marathon 048A170F1H Fan Blade: (1) 18-in Lau 61142601 Heat Exchanger: (1) Kaori K095x20 Condenser: (1) 3-6 Ton Keeprite 1104615 Refrigerant: 407c Enclosure: Stainless steel enclosure by Dimplex Control Cabinet: Stainless steel NEMA 4 electrical enclosure by Saginaw Control &amp; Engineering Tank: 40 gallon, Stainless Steel, Sealed w/ air vent Anti-backflow kit, pressure relief bypass valve, flow switch, &amp; low fluid tank level indicator. Unit full of contents during test.</p>							
<b>MOUNTING:</b>	<b>SPRING ISOLATED:</b> (4)-Sundown Model No. VMSSM1 (1" deflection). Each isolator anchored w/ ½" dia. Grade 5 bolts to UUT and (2)-½" dia. Grade 5 bolts to steel table extension. (Isolators manufactured by Vimco Part No. SSMA-1-127)							
<b>PROPERTIES:</b>								
DIMENSIONS (in.)			Weight (lb.) Dry / Operating	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height		Front-Axis	Side-Axis	Vert-Axis	Off-Axis	
51	27.5	60.75	685 / 1100	1.8	1.7	5.6	1.6	
<b>SHAKE TABLE TEST PARAMETERS</b>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC156	2.1	1	1.5	3.36	2.52	1.41	0.57
Unit maintained structural integrity and remained functional per manufacturer requirement								





**ATTACHMENT 2: TEST SPECIMEN SUMMARY**

<b>UUT- 3</b>		<b>15 Ton Chiller / Rigid Base</b>						
<b>MANUFACTURER:</b>		Dimplex Thermal Solutions						
<b>IDENTIFICATION:</b>		WO2-7500-2P-NF-L-M-407C						
<b>DESCRIPTION:</b>		Dual, Independent Refrigeration Circuit; Dual, Redundant Fluid Circuit Compliant with UL 1995 standards Controller: Carel PCOxs Compressor : (2) 7.5 Ton Sanyo C-SCN603H8K Pump : (2) 2.0 kW Walrus TPHK4T5-5S Fan Motor: (4) ½ HP Marathon 048A170F1H Fan Blade: (4) 18-in Lau 61142601 Heat Exchanger: (2) Kaori K105x40B Condenser: (2) 7.5-10 Ton Keeprite 1104616 Refrigerant: 407c Enclosure: Galvanized steel enclosure by Dimplex Cabinet: Galvanized steel NEMA 4 electrical enclosure, site glass/fill tube by Saginaw Control & Engineering Tank: 72 gallon, stainless steel, sealed w/ air vent tank. Anti-backflow kit, pressure relief bypass valve, flow switch, & low fluid tank level indicator. Unit full of contents during test.						
<b>MOUNTING:</b>		<u>RIGID BASE:</u> (8)-½" Dia. Grade 5 bolts (2 lines of 4 bolts ea.).						
<b>PROPERTIES:</b>								
DIMENSIONS (in.)			Operating	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)	Transverse-Axis	Longitudinal-Axis	Vertical-Axis		
109	34.4	76.25	3000	5.5	5.3	10.2		
<b>SHAKE TABLE TEST PARAMETERS</b>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RI-G</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RI-G</sub> (g)
CBC 2016	ICC-ES AC156	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.04	1.34 1.68	0.54 0.68
Unit maintained structural integrity and remained functional per manufacturer requirement.								



<b>UUT- 4</b>		<b>15 Ton Chiller / Spring Isolator</b>						
<b>MANUFACTURER:</b>		Dimplex Thermal Solutions						
<b>IDENTIFICATION:</b>		WO2-7500-2P-NF-L-M-407C						
<b>DESCRIPTION:</b>		Dual, Independent Refrigeration Circuit; Dual, Redundant Fluid Circuit Compliant with UL 1995 standards Controller: Carel PCOxs Compressor : (2) 7.5 Ton Sanyo C-SCN603H8K Pump : (2) 2.0 kW Walrus TPHK4T5-5S Fan Motor: (4) ½ HP Marathon 048A170F1H Fan Blade: (4) 18-in Lau 61142601 Heat Exchanger: (2) Kaori K105x40B Condenser: (2) 7.5-10 Ton Keeprite 1104616 Refrigerant: 407c Enclosure: Galvanized steel enclosure by Dimplex Cabinet: Galvanized steel NEMA 4 electrical enclosure, site glass/fill tube by Saginaw Control & Engineering Tank: 72 gallon, stainless steel, sealed w/ air vent tank. Anti-backflow kit, pressure relief bypass valve, flow switch, & low fluid tank level indicator. Unit full of contents during test.						
<b>MOUNTING:</b>		<u>SPRING ISOLATED:</u> (8) Mason SLRSO – B – 750 spring isolators [2 lines of 4 isolators along length of UUT] w/ (4) ½" Grade 5 bolts at top & bottom of each isolator.						
<b>PROPERTIES:</b>								
DIMENSIONS (in.)			Operating	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)	Transverse-Axis	Longitudinal-Axis	Vertical-Axis		
109	34.4	76.25	3000	2.4	2.8	5.7		
<b>SHAKE TABLE TEST PARAMETERS</b>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RI-G</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RI-G</sub> (g)
CBC 2016	ICC-ES AC156	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.04	1.34 1.68	0.54 0.68
Unit maintained structural integrity and remained functional per manufacturer requirement.								





**ATTACHMENT 2: TEST SPECIMEN SUMMARY**


<b>UUT- 5</b>		<b>30 Ton Chiller / Rigid Base</b>						
<b>MANUFACTURER:</b>		Dimplex Thermal Solution						
<b>IDENTIFICATION:</b>		WQ2-2-7500-2P-NF-L-M-407C						
<b>DESCRIPTION:</b>		Dual, Independent Refrigeration Circuit with tandem comps; Dual, Redundant Fluid Circuit Compliant with UL1995 standards Controller: Carel PCOxs Compressor : (4) 7.5 Ton Sanyo C-SCN603H8K Pump : (2) 3.9 kW Walrus TPK8T6-SS Fan Motor: (8) ½ HP Marathon 048A170F1H Fan Blade: (8) 16-in Lau 61142601 Heat Exchanger: (2) Kaori K205x40C Condenser: (2) 20 Ton Keeprite 1104618 Refrigerant: 407c Enclosure: Galvanized steel enclosure by Dimplex Cabinet: Galvanized, NEMA 4 electrical enclosure, site glass/fill tube, V-coil cabinet configuration by Saginaw Control & Engineering Tank: 100 gallon, stainless steel, sealed with air-vent Anti-backflow kit, pressure relief bypass valve, flow switch, & low fluid tank level indicator. Unit full of contents during test.						
<b>MOUNTING:</b>		<b>RIGID BASE:</b> (8) - ½" Grade 5 bolts (2 lines of 4 bolts ea).						
<b>PROPERTIES:</b>								
DIMENSIONS (in.)			Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height		Front-Axis	Side-Axis	Vert-Axis		
135	41.5	88.5	3926 (Dry)	5.8	3.0	7.5		
<b>SHAKE TABLE TEST PARAMETERS</b>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC156	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.04	1.34 1.68	0.54 0.68
Unit maintained structural integrity and remained functional per manufacturer requirement								




<b>UUT- 6</b>		<b>Carel pGD Remote Display</b>						
<b>MANUFACTURER:</b>		Philips Healthcare						
<b>IDENTIFICATION:</b>		pGD						
<b>DESCRIPTION:</b>		Optional interface panel to for remote display & programming of chillers.						
<b>MOUNTING:</b>		<b>WALL MOUNTED:</b> (2) mfr-supplied machine screws into (2) layers 5/8" Gyp Bd						
<b>PROPERTIES:</b>								
DIMENSIONS (in.)			Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height		Transverse-Axis	Longitudinal-Axis	Vertical-Axis		
6.1	1.2	3.2	< 1	---	---	---		
<b>SHAKE TABLE TEST PARAMETERS</b>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.2	2.4	1.34	0.54
Unit maintained structural integrity and remained functional per manufacturer requirement								



**ATTACHMENT 2: TEST SPECIMEN SUMMARY**

<b>UUT- A1R 20 Ton Chiller / Rigid Base</b>										
<b>Manufacturer:</b>		Dimplex Thermal Solutions								
<b>Identification:</b>		WO2-10000-2P-NF-L-M-407C:								
<b>Description:</b>		Dual, Independent Refrigeration Circuit; Dual, Redundant Fluid Circuit Compliant with UL1995 standards Controller: Carel PCO1 / Johnson Controls P266 Compressor : (2) 10 Ton Panasonic C-SCN753H8K Pump : (2) 3 hp Walrus TPK4T5-5S Fan Motor: (4) ½ HP Marathon 048A170F1H Fan Blade: (4) 18-in Lau 61142601 Heat Exchanger: (2) Kaori K205x30C Condenser: (2) 15 Ton Keeprite 1104617 Refrigerant: 407c Enclosure: Galvanized steel enclosure by Dimplex Cabinet: Galvanized steel NEMA 4 electrical enclosure, site glass/fill tube by Saginaw Control & Engineering Tank: 100 gallon, stainless steel, sealed w/ air vent tank. Anti-backflow kit, pressure relief bypass valve, flow switch, & low fluid tank level indicator. Unit full of contents during test.								
<b>Mounting:</b>		RIGID BASE: (8) – ½" dia. GR8 hex head bolts with standard washers.								
<b>PROPERTIES:</b>										
DIMENSIONS (in.)			Weight (lb.)		LOWEST RESONANT FREQUENCY (Hz.)					
Width	Depth	Height	Dry/Operating		Front-Axis	Side-Axis	Vert-Axis			
115	44.25	88.5	2940 / 3705		3.9	4.9	11.7			
<b>SHAKE TABLE TEST PARAMETERS</b>										
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)		
CBC 2016	ICC-ES AC156	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.04	1.34 1.68	0.54 0.68		
Unit maintained structural integrity and remained functional per manufacturer requirements.										

<b>UUT- A1S 20 Ton Chiller / Spring Isolator</b>										
<b>MANUFACTURER:</b>		Dimplex Thermal Solutions								
<b>IDENTIFICATION:</b>		WO2-10000-2P-NF-L-M-407C								
<b>DESCRIPTION:</b>		Dual, Independent Refrigeration Circuit; Dual, Redundant Fluid Circuit Compliant with UL1995 standards Controller: Carel PCO1 / Johnson Controls P266 Compressor : (2) 10 Ton Panasonic C-SCN753H8K Pump : (2) 3 hp Walrus TPK4T5-5S Fan Motor: (4) ½ HP Marathon 048A170F1H Fan Blade: (4) 18-in Lau 61142601 Heat Exchanger: (2) Kaori K205x30C Condenser: (2) 15 Ton Keeprite 1104617 Refrigerant: 407c Enclosure: Galvanized steel enclosure by Dimplex Cabinet: Galvanized steel NEMA 4 electrical enclosure, site glass/fill tube by Saginaw Control & Engineering Tank: 100 gallon, stainless steel, sealed w/ air vent tank. Anti-backflow kit, pressure relief bypass valve, flow switch, & low fluid tank level indicator. Unit full of contents during test.								
<b>MOUNTING:</b>		SPRING ISOLATED: (8) Mason SLRSO – B – 450 spring isolators w/ (4) ½" Grade 8 bolts at top & bottom of each isolator.								
<b>PROPERTIES:</b>										
DIMENSIONS (in.)			Weight (lb.)		LOWEST RESONANT FREQUENCY (Hz.)					
Width	Depth	Height	Dry/Operating		Transverse-Axis	Longitudinal-Axis	Vertical-Axis			
115	44.25	88.5	2940 / 3705		2.5	2.6	6.4			
<b>SHAKE TABLE TEST PARAMETERS</b>										
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)		
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.2	2.4	1.34	0.54		
Unit maintained structural integrity and remained functional per manufacturer requirement.										

**ATTACHMENT 2: TEST SPECIMEN SUMMARY**

<b>UUT- A2S      40 Ton Chiller / Spring Isolators</b>								
<b>MANUFACTURER:</b>				Dimplex Thermal Solutions				
<b>IDENTIFICATION:</b>				WO2-2-10000-2P-NF-L-M-407C				
<b>DESCRIPTION:</b>				Dual, Independent Refrigeration Circuit; Dual, Redundant Fluid Circuit Compliant with UL1995 standards Controller:           Carel PCOxs Compressor :       (4) 10 ton Panasonic C-SCN753H8K Pump :               (2) 3 hp Walrus TPK8T6-5S Fan Motor:           (8) ½ HP Marathon WB48A170F1H Fan Blade:           (8) 18-in Lau 61142601 Heat Exchanger:   (2) Kaori K105x40B Condenser:         (2) 20 Ton Keeprite 1104618 Refrigerant:        407c Enclosure:          Galvanized steel enclosure by Dimplex Cabinet:            Galvanized steel NEMA 4 electrical enclosure, site glass/fill tube by Saginaw Control & Engineering Tank:                Stainless steel, sealed w/ air vent tank. Anti-backflow kit, pressure relief bypass valve, flow switch, & low fluid tank level indicator. Unit full of contents during test.				
<b>MOUNTING:</b>				<u>SPRING ISOLATED:</u> (8) Mason SLRSO – B – 750 spring isolators [2 lines of 4 isolators along length of UUT] w/ (4) ½" Grade 8 bolts at top & bottom of each isolator. Unit full of contents during test.				
<b>PROPERTIES:</b>								
DIMENSIONS (in.)			Weight (lb.)		LOWEST RESONANT FREQUENCY (Hz.)			
Width	Depth	Height	Dry / Operating		Front-Axis	Side-Axis	Vert-Axis	
135	44.25	88.5	4185 / Wet 4750		3.1	2.8	6.1	
<b>SHAKE TABLE TEST PARAMETERS</b>								
CODE	TEST CRITERIA	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC156	2.0	1.0	1.5	3.2	2.4	1.34	0.54
		2.5	0.0		2.5	1.04	1.68	0.68
Unit maintained structural integrity and remained functional per manufacturer requirement								

