



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0116 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Daikin Applied

Manufacturer's Technical Representative: Eddie Rodriguez

Mailing Address: 207 Laurel Hill Rd., Verona, VA 24482

Telephone: 540.248.9558

Email: Eddie.rodriquez@daikinapplied.com

Product Information

Product Name: WMC, TMC, WSC, WDC, HSC, TSC

Product Type: Water Cooled Chillers

Product Model Number: See Attachment A for a complete listing of models included in this application.

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

General Description: Centrifugal Chillers. Seismic enhancements made to the test units required to address the anomalies observed during the tests shall be incorporated into the production units.

VFD081AMA Control Panels require a permanent ratchet strap at mid-height around unit, at all times, to secure door (See UUT-6/7)

Mounting Description: Base mounted rigid or neoprene isolated.

Applicant Information

Applicant Company Name: TRU Compliance, LLC

Contact Person: Matthew J. Tobolski, S.E.

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200

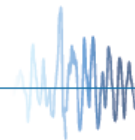
Email: mtobolski@trucompliance.com

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: 4/6/2017

Title: President & CEO Company Name: TRU Compliance, LLC

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





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

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

Company Name: TRU Compliance, LLC

Name: Matthew J. Tobolski, S.E.

California License Number: S5648

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200

Email: mtobolski@trucompliance.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: Portland State University

Contact Name: Peter Dusicka, PhD

Mailing Address: 1930 SW 4th Ave., Suite 200, Portland, OR 97201

Telephone: 503.725.4275

Email: dusicka@pdx.edu

Company Name: UCSD: SRMD Test Facility

Contact Name: Gianmario Benzoni, PhD

Mailing Address: 9500 Gilman Dr., La Jolla, CA 92093

Telephone: 858.534.1432

Email: benzoni@ucsd.edu

Company Name: Pacific Earthquake Engineering Research Center (PEER)

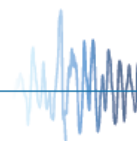
Contact Name: Nate Knight

Mailing Address: 325 Davis Hall, University of California, Berkeley, CA 94720-1792

Telephone: 510.665.2135

Email: nathaniel_knight@berkeley.edu

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Seismic Parameters

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

Rigid: 1.15 ($S_{DS} = 1.6g$, $z/h = 1$), 0.72 ($S_{DS} = 1.6g$, $z/h = 0$)
Isolated: 3.60 ($S_{DS} = 2.0g$, $z/h = 1$), 1.50 ($S_{DS} = 2.5g$, $z/h = 0$);
2.88 ($S_{DS} = 1.6g$, $z/h = 1$), 0.96 ($S_{DS} = 1.6g$, $z/h = 0$)

Design Basis of Equipment or Components (F_p/W_p) = _____

S_{DS} (Design spectral response acceleration at short period, g) = See attachment

a_p (In-structure equipment or component amplification factor) = 1.0 (Rigid); 2.5 (Isolated)

R_p (Equipment or component response modification factor) = 2.5 (Rigid); 2.5 (Isolated)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0, 0.0

Equipment or Component Natural Frequencies (Hz) = See attachment

Overall dimensions and weight (or range thereof) = See attachment

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) = _____

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

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): Attachment

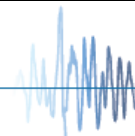
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature:  Date: May 30, 2017

Print Name: Timothy J. Piland Title: SSE

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

Condition of Approval (if applicable): VFD081AMA Control Panels require a permanent ratchet strap at mid-height around unit, at all times, to secure door (See UUT-6/7).



TRU PROJECT NO. 15046



TRU Compliance, LLC - A Tobolski Watkins Affiliate
844.TRU.0200 | info@trucompliance.com

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 15046



| Manufacturer: Daikin Applied | | | | | TABLE 2 | | |
|---|--------|--------------------------------------|-------|--|----------------|--|-----|
| Model Line: WSC, WDC, HSC and TSC Centrifugal Compressor Water Chillers | | | | | | | |
| Certified Product Construction Summary: Carbon Steel | | | | | | | |
| Certified Options Summary: Subcomponents and options are summarized in Table 4. | | | | | | | |
| Mounting Configuration: Base mounted - rigid or neoprene isolated Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. | | | | | | | |
| Building Code: IBC 2015 | | Seismic Certification Limits: | | $S_{DS} = 1.6 \quad z/h = 1.0$ $S_{DS} = 1.6 \quad z/h = 0.0$ | | $I_P = 1.5$ | |
| Model Line | Model | Dimensions (in) | | | Weight (lb) | Notes | UUT |
| | | Depth | Width | Height | | | |
| Single Centrifugal Compressor Chillers, WSC, 200-1250 tons | WSC063 | 175 | 53 | 90 | 16,769 | WSC, HSC, and TSC Model lines are the same except for software | 5 |
| | WSC079 | 175 | 80 | 105 | 22,007 | | |
| | WSC087 | 175 | 80 | 105 | 24,999 | | |
| | WSC100 | 181 | 104 | 106 | 38,823 | | |
| | WSC113 | 181 | 104 | 106 | 43,017 | | |
| | WSC126 | 181 | 104 | 106 | 43,017 | | |
| Double Centrifugal Compressor Chillers, WDC, 400-2500 tons | WDC063 | 224 | 75 | 106 | 37,515 | | |
| | WDC079 | 224 | 93 | 106 | 54,197 | | |
| | WDC087 | 224 | 93 | 106 | 54,197 | | |
| | WDC100 | 276 | 104 | 110 | 86,282 | | |
| | WDC113 | 276 | 104 | 110 | 86,282 | | |
| | WDC126 | 276 | 104 | 110 | 86,282 | | 2 |
| Heat Recovery Centrifugal Compressor Chillers, HSC, 200-1250 tons | HSC063 | 175 | 53 | 90 | 16,769 | WSC, HSC, and TSC Model lines are the same except for software | 5 |
| | HSC079 | 175 | 80 | 105 | 22,007 | | |
| | HSC087 | 175 | 80 | 105 | 24,999 | | |
| | HSC100 | 181 | 104 | 106 | 38,823 | | |
| | HSC113 | 181 | 104 | 106 | 43,017 | | |
| | HSC126 | 181 | 104 | 106 | 43,017 | | |
| Templifier Centrifugal Compressor Heat Pump Water Heaters, TSC, 5,000 to 19,000 MBH | TSC063 | 175 | 53 | 90 | 16,769 | WSC, HSC, and TSC Model lines are the same except for software | 5 |
| | TSC079 | 175 | 80 | 105 | 22,007 | | |
| | TSC087 | 175 | 80 | 105 | 24,999 | | |
| | TSC100 | 181 | 104 | 106 | 38,823 | | |
| | TSC113 | 181 | 104 | 106 | 43,017 | | |
| | TSC126 | 181 | 104 | 106 | 43,017 | | |

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15046



| Manufacturer: Daikin Applied Model Line: WMC and TMC Magnetic Bearing Centrigual Chillers | | | | TABLE 3 | |
|--|------------------|--------------------------------------|---|--|-----|
| Building Code: IBC 2015 | | Seismic Certification Limits: | | $S_{DS} = 2.0$ $z/h = 1.0$ $I_P = 1.5$ $S_{DS} = 2.5$ $z/h = 0.0$ | |
| Component Type | Manufacturer | Model | Description | Notes | UUT |
| Compressor | Danfoss/Turbocor | TT300 | Magnetic Bearing Compressor with Integral Motor and Variable Frequency Drive (Carbon Steel) | | 1 |
| | | TT350 | | | |
| | | TT400 | | | |
| | | TT500 | | | |
| | | TT700 | | | 3 |
| Evaporator | Daikin | E2209 | Carbon Steel ASME Shell with Copper Tubes | | 1 |
| | | E2212 | | | 5 |
| | | E2609 | | | |
| | | E2612 | | | |
| | | E3009 | | | 3 |
| Condenser | Daikin | C2009 | Carbon Steel ASME Shell with Copper Tubes | | 1 |
| | | C2012 | | | 5 |
| | | C2209 | | | |
| | | C2212 | | | |
| | | C2609 | | | 3 |
| Controllers | Benshaw/Carel | Part 332830705 | MicroTech II, Carel based, Carbon Steel | Unit Controller | 1,3 |
| Operator Interface | AxiomTech | Part 331670401 | OITS, 21" Touch Screen, Plastic | | 3,5 |
| | GVision | Part 330276502 | OITS, 15" Touch Screen, Plastic | | 1 |
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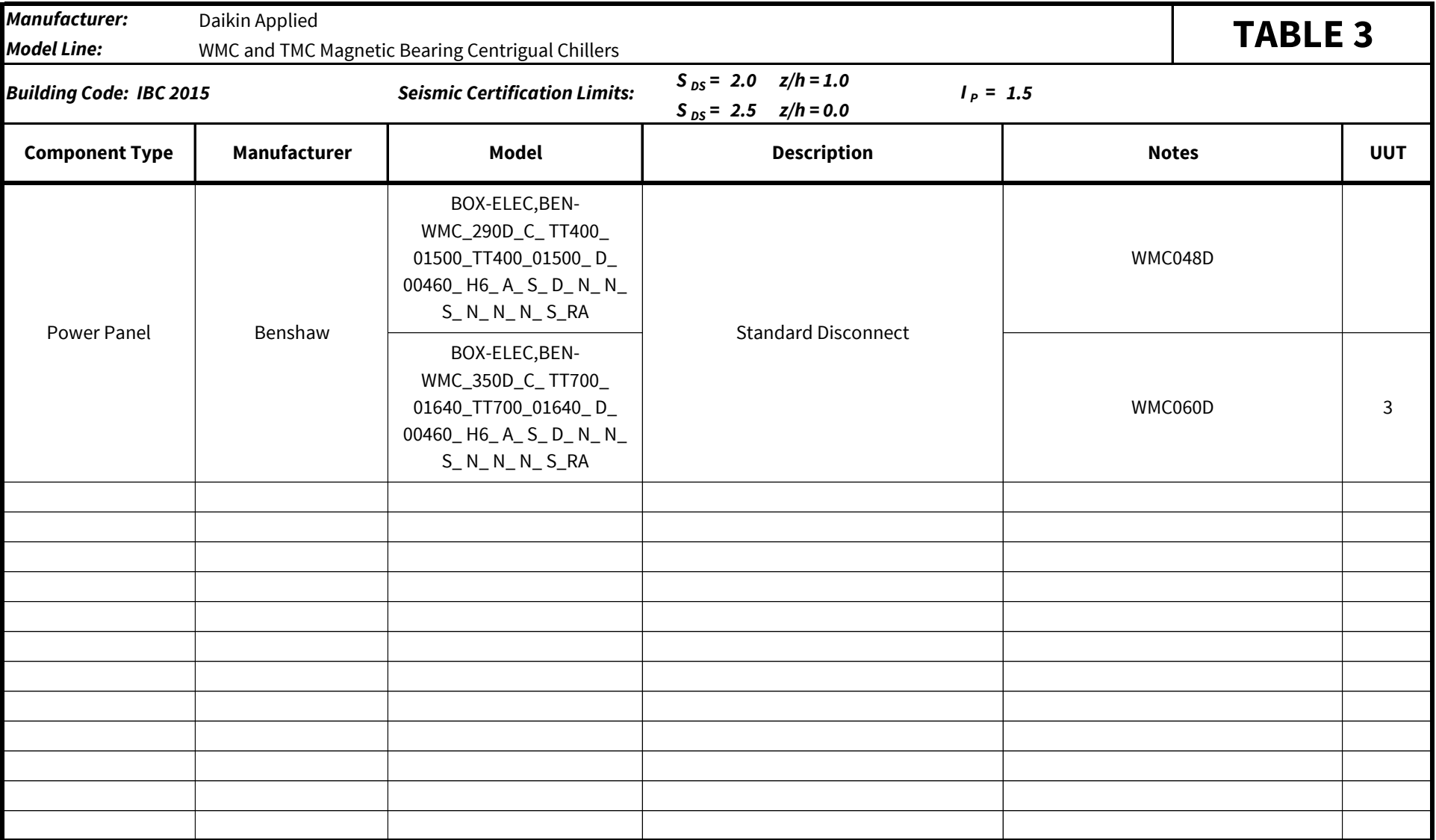
SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15046



| Manufacturer: Daikin Applied | | | | TABLE 3 | |
|---|--------------|--|--|----------------|-----|
| Model Line: WMC and TMC Magnetic Bearing Centrigual Chillers | | | | | |
| Building Code: IBC 2015 | | Seismic Certification Limits: | $S_{DS} = 2.0$ $z/h = 1.0$ $S_{DS} = 2.5$ $z/h = 0.0$ | $I_p = 1.5$ | |
| Component Type | Manufacturer | Model | Description | Notes | UUT |
| Power Panel | Benshaw | BOX-ELEC,BEN- WMC_145S_B_ TT300_ 01450_00000_00000_D_ 00460_H6_A_S_D_N_N_ S_N_N_N_S_RA | Standard Disconnect | WMC048S | 1 |
| | | BOX-ELEC,BEN- WMC_200S_B_ TT700_ 01640_00000_00000_D_ 00460_H6_A_S_D_N_N_ S_N_N_N_S_RA | | WMC060S | |
| | | BOX-ELEC,BEN- WMC_150D_C_ TT300_ 01350_TT300_01350_D_ 00460_H6_A_S_D_N_N_ S_N_N_N_S_RA | | WMC036D | |
| | | BOX-ELEC,BEN- WMC_275D_C_ TT350_ 02160_TT350_02160_D_ 00460_H6_A_S_D_N_N_ S_N_N_N_S_RA | | WMC044D | |
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TRU PROJECT NO. 15046



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15046



| Manufacturer: Daikin Applied | | | | TABLE 4 | |
|--|--------------|--------------------------------------|--|--------------------------------|-------------|
| Model Line: WSC, WDC, HSC and TSC Centrifugal Compressor Water Chillers | | | | | |
| Building Code: IBC 2015 | | Seismic Certification Limits: | $S_{DS} = 1.6$ | $z/h = 1.0$ | $I_P = 1.5$ |
| | | | $S_{DS} = 1.6$ | $z/h = 0.0$ | |
| Component Type | Manufacturer | Model | Description | Notes | UUT |
| Compressor | Daikin | CE063 | Oil Centrifugal Compressor | | 5 |
| | | CE079 | | | |
| | | CE087 | | | |
| | | CE100 | | | |
| | | CE113 | | | |
| | | CE126 | | | 2 |
| Evaporator | Daikin | E2212 | Carbon Steel ASME Shell with Copper Tubes | | 5 |
| | | E2612 | | | |
| | | E3012 | | | |
| | | E3612 | | | |
| | | E4212 | | | |
| | | E2416 | | | |
| | | E3016 | | | |
| | | E3616 | | | |
| | | E4216 | | | |
| | | E4816 | | | 2 |
| Oil Pump | Daikin | 16 | Part 350147201, CE063-CE087 Compressors, 1hp, 120V | Semi-Hermetic Cast Steel Shell | 5 |
| | | | Part 350147221, CE100-CE126 Compressors, 1hp, 120V | | 2 |
| Oil Cooler | Alfa Laval | 26 | Part 74666413 | Stainless Steel Brazed Plate | 5 |
| | | 48 | Part 74666413 | | 2 |
| | | | | | |

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15046



| Manufacturer: Daikin Applied Model Line: WSC, WDC, HSC and TSC Centrifugal Compressor Water Chillers | | | | TABLE 4 | |
|---|---------------|--------------------------------------|---|--|-----|
| Building Code: IBC 2015 | | Seismic Certification Limits: | | $S_{DS} = 1.6$ $z/h = 1.0$ $S_{DS} = 1.6$ $z/h = 0.0$ $I_p = 1.5$ | |
| Component Type | Manufacturer | Model | Description | Notes | UUT |
| Condenser | Daikin | C2212 | Carbon Steel ASME Shell with Copper Tubes | | 5 |
| | | C2612 | | | |
| | | C3012 | | | |
| | | C3612 | | | |
| | | C4212 | | | |
| | | C2416 | | | |
| | | C3016 | | | |
| | | C3616 | | | |
| | | C4216 | | | |
| | | C4816 | | | 2 |
| Controller | Benshaw/Carel | Part 333529001 | MicroTech II, Carel based, Carbon Steel | Unit Controller | 2,5 |
| | | Part 333529201 | | Compressor Controller | 2,5 |
| Operator Interface | AxiomTech | Part 331670401 | OITS, 21" Touch Screen, Plastic | | 3,5 |
| | GVision | Part 330276502 | OITS, 15" Touch Screen, Plastic | | 1,2 |
| VFD Starter ¹ | ABB | VFD015AMA | | | |
| | | VFD018AMA | | | 5 |
| | | VFD026AMA | | | |
| | | VFD035AMA | | | |
| | | VFD045AMA | | | |
| | | VFD059AMA | | | |
| | | VFD073AMA | | | |
| | | VFD081AMA | | | 6,7 |

¹Wall or unit mounted with seismic upgrade consisting of a ratchet strap around cabinet.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 15046



| Manufacturer: Daikin Applied Model Line: WSC, WDC, HSC and TSC Centrifugal Compressor Water Chillers | | | | TABLE 4 | |
|---|------------------|--------------------------------------|---------------------------------|--|-----|
| Building Code: IBC 2015 | | Seismic Certification Limits: | | $S_{DS} = 1.6$ $z/h = 1.0$ $S_{DS} = 1.6$ $z/h = 0.0$ $I_p = 1.5$ | |
| Component Type | Manufacturer | Model | Description | Notes | UUT |
| Motor | Regal Beloit/RAM | 23 | 230hp, 200V - 575V, 460V tested | Semi-Hermetic Copper windings/Carbon Steel Shell | 5 |
| | | 25 | 250hp, 2300V-6600V | | |
| | | 29 | 290hp, 200V - 575V | | |
| | | 32 | 320hp, 2300V-6600V | | |
| | | 35 | 350hp, 200V - 575V | | |
| | | 40 | 400hp, 200V - 575V | | |
| | | 41 | 410hp, 200V-6600V | | |
| | | 47 | 450hp, 200V - 575V | | |
| | | 49 | 500hp, 200V - 575V | | |
| | | 50 | 500hp, 2300V-6600V | | |
| | | 57 | 575hp, 200V - 575V | | |
| | | 58 | 580hp, 2300V-6600V | | |
| | | 61 | 600hp, 380V - 6600V | | |
| | | 65 | 650hp, 2300V - 6600V | | |
| | | 66 | 650hp, 200V - 575V | | |
| | | 72 | 725hp, 380V - 6600V | | |
| | | 84 | 850hp, 380V - 6600V | | 2 |
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TRU PROJECT NO. 15046

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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15046



| | | |
|-----------------------|------------------------------|--------------|
| Manufacturer: | Daikin Applied | UUT 1 |
| Model Line: | WMC, TMC, WSC, WDC, HSC, TSC | |
| Model Number: | WMC048S E2209/C2009 | |
| Serial Number: | | N/A |

Product Construction Summary:

Carbon Steel

Options/Subcomponent Summary:

WMC145 with E2209 Evaporator, C2009 Condenser, Daikin TT300 Compressor, MicroTech II Unit Controller in Benshaw Enclosure (Part 332830705), Power Panel in Benshaw Enclosure (Part BOX-ELEC,BEN-WMC_145S_B_ TT300_ 01450_00000_00000_ D_ 00460_ H6_ A_ S_ D_ N_ N_ S_ N_ N_ N_ S_RA), AxiomTech 15" Interface (Part 330276502)

UUT Properties

| Weight (lb) | Dimension (in) | | | Lowest Natural Frequency (Hz) | | |
|-------------|----------------|-------|--------|-------------------------------|-----------|----------|
| | Depth | Width | Height | Front-Back | Side-Side | Vertical |
| 5,920 | 128 | 35 | 79 | 12.3 | 10.1 | >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) |
|---------------|---------------|---------------------|-----|----------------|------------------------|------------------------|------------------------|------------------------|
| IBC 2015 | ICC-ES AC156 | 2.0 | 1.0 | 1.5 | 3.2 | 2.4 | - | - |

Test Mounting Details:



Base Mounted - Isolated on 1/4" Neoprene Pads with (8) 1" Dia. Grade 8 Bolts
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15046



| | | |
|-----------------------|------------------------------|--------------|
| Manufacturer: | Daikin Applied | UUT 2 |
| Model Line: | WMC, TMC, WSC, WDC, HSC, TSC | |
| Model Number: | WDC126 E4816/C4816 | |
| Serial Number: | | N/A |

Product Construction Summary:

Carbon Steel

Options/Subcomponent Summary:

WDC200S with E4816 Evaporator, C4816 Condenser, Daikin CE126 Compressor, RBC 84 Motor 850 hp, Daikin 16 1hp Oil Pump (Part 350147221), Alfa Laval 48 Oil Cooler (Part 74666414), MicroTech II Unit Controller in Benshaw Enclosure (Part 333529001), MicroTech II Compressor Controller in Benshaw Enclosure (Part 333529201), AxiomTech 15" Interface (Part 330276502)

UUT Properties

| Weight (lb) | Dimension (in) | | | Lowest Natural Frequency (Hz) | | |
|----------------|----------------|-------|--------|-------------------------------|-----------|----------|
| | Depth | Width | Height | Front-Back | Side-Side | Vertical |
| 78,781 | 231 | 118 | 115 | 8.5 | 6.3 | 21.5 |

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) |
|---------------|---------------|---------------------|-----|----------------|------------------------|------------------------|------------------------|------------------------|
| IBC 2015 | ICC-ES AC156 | 1.6 | 1.0 | 1.5 | 2.56 | 1.92 | 1.07 | 0.43 |

Test Mounting Details:



Base Mounted - Isolated on 1/4" Neoprene Pads with (8) 1" Dia. Grade 8 Bolts
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15046



| | | |
|-----------------------|--------------------------------------|--------------|
| Manufacturer: | Daikin Applied | UUT 3 |
| Model Line: | WMC, TMC, WSC, WDC, HSC, TSC | |
| Model Number: | WMC060DC/E3009-HB2CL2V/C2609-GB2CL2V | |
| Serial Number: | 517A000900 | |

Product Construction Summary:

Carbon Steel

Options/Subcomponent Summary:

WMC060D with E3009 Evaporator, C2609 Condenser, Dual Danfoss TT700 Compressors, MicroTech II Unit Controller in Benshaw Enclosure (Part 332830705), Power Panel in Benshaw Enclosure (Part BOX-ELEC, BEN-WMC_350D_C_ TT700_01640_TT700_01640_D_00460_H6_A_S_D_N_N_S_N_N_N_S_RA), Tru-Vu 21" Interface (Part 331670401)

UUT Properties

| Weight (lb) | Dimension (in) | | | Lowest Natural Frequency (Hz) | | |
|-------------|----------------|-------|--------|-------------------------------|-----------|----------|
| | Depth | Width | Height | Front-Back | Side-Side | Vertical |
| 9,555 | 168.5 | 55.2 | 94.3 | 14.2 | 14.3 | 12.8 |

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) |
|---------------|---------------|---------------------|-----|----------------|------------------------|------------------------|------------------------|------------------------|
| IBC 2015 | ICC-ES AC156 | 2.0 | 1.0 | 1.5 | 3.2 | 2.4 | 1.67 | 0.67 |
| | | 2.5 | 0.0 | | | | | |

Test Mounting Details:



Unit was rigid base mounted to the table using (8) 1" diameter SAE Grade 8 bolts and a 1/4" ribbed neoprene pad under each mounting foot.

Unit maintained structural integrity and remained functional per manufacturer requirement.

Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15046



| | | |
|-----------------------|------------------------------|---------------|
| Manufacturer: | Daikin Applied | UUT 5 |
| Model Line: | WMC, TMC, WSC, WDC, HSC, TSC | |
| Model Number: | WSC063M/E2212-2RA/C2212-2RA | |
| Serial Number: | | STNU161200060 |

Product Construction Summary:

Carbon Steel

Options/Subcomponent Summary:

WSC063 with E2212 Evaporator, C2212 Condenser, Daikin CE063 Compressor, RBC 23 230hp Motor, Daikin 16 1hp Oil Pump (Part 350147201), Alfa Laval 48 Oil Cooler (Part 74666413), MicroTech II Unit Controller in Benshaw Enclosure, MicroTech II Compressor Controller in Benshaw Enclosure (Part 333529001), ABB VFD018AMA Starter, Tru-Vu 21" Interface (Part 331670401)

UUT Properties

| Weight (lb) | Dimension (in) | | | Lowest Natural Frequency (Hz) | | |
|-------------|----------------|-------|--------|-------------------------------|-----------|----------|
| | Depth | Width | Height | Front-Back | Side-Side | Vertical |
| 9,170 | 175 | 53 | 90 | 11 | 10.6 | 10.8 |

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) |
|---------------|---------------|---------------------|-----|----------------|------------------------|------------------------|------------------------|------------------------|
| IBC 2015 | ICC-ES AC156 | 2.0 | 1.0 | 1.5 | 3.2 | 2.4 | 1.67 | 0.67 |
| | | 2.5 | 0.0 | | | | | |

Test Mounting Details:



Unit was rigid base mounted to the table using (8) 1" diameter SAE Grade 8 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15046



| | | |
|-----------------------|------------------------------|--------------|
| Manufacturer: | Daikin Applied | UUT 6 |
| Model Line: | WMC, TMC, WSC, WDC, HSC, TSC | |
| Model Number: | VFD081AMA | |
| Serial Number: | | 21643C0001 |

Product Construction Summary:
Carbon Steel Enclosure

Options/Subcomponent Summary:
A ratchet strap around cabinet was included as a seismic upgrade to keep door closed during testing.

| UUT Properties | | | | | | | | | | |
|--|----------------|---------------|--------|-------------------------------|-----------|----------------|------------------------|------------------------|------------------------|------------------------|
| Weight (lb) | Dimension (in) | | | Lowest Natural Frequency (Hz) | | | | | | |
| | Depth | Width | Height | Front-Back | Side-Side | Vertical | | | | |
| 944 | 61 | 59 | 80 | 1.5 | 1.9 | 4.3 | | | | |
| 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) |
| IBC 2015 | | ICC-ES AC156 | | 2.0 | 1.0 | 1.5 | 3.2 | 2.4 | 1.67 | 0.67 |
| | | | | 2.5 | 0.0 | | | | | |

Test Mounting Details:



The unit was mounted on a test fixture (total wt. 3,815 lb) that was base mounted on (4) MSSH-1E-1000 isolators using (4) 5/8" diameter SAE Grade 8 bolts each to fasten the isolators to the table and (1) 3/4" SAE Grade 8 bolt each to fasten the UUT to the isolator. Unit maintained structural integrity and remained functional per manufacturer requirement. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 15046



| | | |
|-----------------------|------------------------------|--------------|
| Manufacturer: | Daikin Applied | UUT 7 |
| Model Line: | WMC, TMC, WSC, WDC, HSC, TSC | |
| Model Number: | VFD081AMA | |
| Serial Number: | | 21643C0001 |

Product Construction Summary:

Carbon Steel Enclosure

Options/Subcomponent Summary:

A ratchet strap around cabinet was included as a seismic upgrade to keep door closed during testing.

UUT Properties

| Weight (lb) | Dimension (in) | | | Lowest Natural Frequency (Hz) | | |
|-------------|----------------|-------|--------|-------------------------------|-----------|----------|
| | Depth | Width | Height | Front-Back | Side-Side | Vertical |
| 944 | 61 | 59 | 80 | 4.6 | 4.7 | 13.9 |

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) |
|---------------|---------------|---------------------|-----|----------------|------------------------|------------------------|------------------------|------------------------|
| IBC 2015 | ICC-ES AC156 | 2.0 | 1.0 | 1.5 | 3.2 | 2.4 | 1.67 | 0.67 |
| | | 2.5 | 0.0 | | | | | |

Test Mounting Details:



The unit was mounted on a test fixture (total wt. 3,815 lb) that was base mounted on (4) MSSH-1E-1000 isolators which were locked to simulate rigid mounting. The isolators were fastened to the table using (4) 5/8" diameter SAE Grade 8 bolts each and (1) 3/4" SAE Grade 8 bolt each to fasten the UUT to the isolator. Unit maintained structural integrity and remained functional per manufacturer requirement. Contents were included in testing per operating conditions.

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