APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0562

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Samsung

Manufacturer's Technical Representative: Sam Yoon

Mailing Address: 776 Henrietta Creek Road, Suite 100, Roanoke, TX 76262

Telephone: 888-699-6067 x 235 Email: sam.yoon@samsunghvac.com

Product Information

Product Name: Samsung Commercial VRF Product Line

Product Type: Split Air Conditioning Units

Product Model Number: See Attachment
(List all unique product identification numbers and/or part numbers)

General Description: Split system including heating and air-conditioning units. Seismic enhancements and modifications required to address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Outdoor units are rigid base mounted; indoor units are rigid suspended or rigid wall mounted.

Outdoor Unit FRAME UB-2 (Table 1e) require protruding diagonal angle struts on unit ext. – see UUT Sheets.

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DATE: 03/20/2020
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Applicant Information

Applicant Company Name: Samsung

Contact Person: Sam Yoon

Mailing Address: 776 Henrietta Creek Road, Suite 100, Roanoke, TX 76262

Telephone: 888-699-6067 x 235 Email: sam.yoon@samsunghvac.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: Sam Y Date: 03/26/2018

Title: Senior Product Manager Company Name: Samsung

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

Company Name: Buehler & Buehler Structural Engineers, Inc.

Name: Scott Hooker California License Number: S3937

Mailing Address: 600 Q St. Suite 200, Sacramento, CA 95811

Telephone: (916) 443-0303 Email: Shooker@bbse.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):

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Testing Laboratory

Company Name: Curtiss-Wright

Contact Name: Jason VonNida

Mailing Address: 4600 E Tech Drive, Cincinnati, OH

Telephone: 1-513-528-7900 Email: jvonnida@curtisswright.com

Seismic Parameters

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

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

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

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = See attached

Equipment or Component Natural Frequencies (Hz) = See UUT Sheets

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

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

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List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☐ Drawings ☐ Calculations ☐ Manufacturer's Catalog

☒ Other(s) (Please Specify): Equipment matrix, UUT sheets, Manufacturer's Cut sheets, ISO 9001 certificates

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: _____ Date: March 20, 2019

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):

Table 1a. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0

F_P / W_p = 1.88

Group A: DVM S Outdoor Unit

Mounting: Rigid Base Mount

Model Number	No modules	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM072FXVAFH/AA	1	72,000	Extrapolated	30.1	34.6	66.7	413.4	
AM072FXVAFH2AA	1	72,000	Extrapolated	30.1	34.6	66.7	413.4	
AM072FXVAFR/AA	1	72,000	Extrapolated	30.1	34.6	66.7	417.8	
AM072FXVAFR2AA	1	72,000	Extrapolated	30.1	34.6	66.7	417.8	
AM072FXVAJH/AA	1	72,000	Extrapolated	30.1	34.6	66.7	424.4	
AM072FXVAJH2AA	1	72,000	Extrapolated	30.1	34.6	66.7	424.4	
AM072FXVAJR/AA	1	72,000	Extrapolated	30.1	34.6	66.7	433.2	
AM072FXVAJR2AA	**1**	**72,000**	**UUT-1a**	**30.1**	**34.6**	**66.7**	**443.2**	
AM096FXVAJH/AA	1	96,000	Interpolated	30.1	51	66.7	540.1	
AM096FXVAJH2AA	1	96,000	Interpolated	30.1	51	66.7	540.1	
AM096FXVAJR/AA	1	96,000	Interpolated	30.1	51	66.7	553.4	
AM096FXVAJR2AA	1	96,000	Interpolated	30.1	51	66.7	553.4	
AM096FXVAFH/AA	1	96,000	Interpolated	30.1	51	66.7	623.9	
AM096FXVAFH2AA	1	96,000	Interpolated	30.1	51	66.7	623.9	
AM096FXVAFR/AA	1	96,000	Interpolated	30.1	51	66.7	637.1	
AM096FXVAFR2AA	1	96,000	Interpolated	30.1	51	66.7	637.1	
AM120FXVAJH/AA	1	120,000	Interpolated	30.1	51	66.7	540.1	
AM120FXVAJH2AA	1	120,000	Interpolated	30.1	51	66.7	540.1	
AM120FXVAJR/AA	1	120,000	Interpolated	30.1	51	66.7	553.4	
AM120FXVAJR2AA	1	120,000	Interpolated	30.1	51	66.7	553.4	
AM120FXVAFH/AA	1	120,000	Interpolated	30.1	51	66.7	623.9	
AM120FXVAFH2AA	1	120,000	Interpolated	30.1	51	66.7	623.9	
AM120FXVAFR/AA	1	120,000	Interpolated	30.1	51	66.7	637.1	
AM120FXVAFR2AA	1	120,000	Interpolated	30.1	51	66.7	637.1	
AM144FXVAFH/AA	1	144,000	Interpolated	30.1	51	66.7	657.0	
AM072KXVTFH/AA	2	144,000	Interpolated	30.1	51	66.7	657.0	
AM144FXVAFH2AA	1	144,000	Interpolated	30.1	51	66.7	657.0	
AM144FXVAFR/AA	1	144,000	Interpolated	30.1	51	66.7	672.4	
AM144FXVAFR2AA	1	144,000	Interpolated	30.1	51	66.7	672.4	
AM072KXVTFR/AA	2	144,000	Interpolated	30.1	51	66.7	672.4	
AM144FXVAJH/AA	1	144,000	Interpolated	30.1	51	66.7	672.4	
AM072KXVTJH/AA	2	144,000	Interpolated	30.1	51	66.7	672.4	
AM144FXVAJH2AA	1	144,000	Interpolated	30.1	51	66.7	672.4	
AM144FXVAJR/AA	1	144,000	Interpolated	30.1	51	66.7	692.3	
AM144FXVAJR2AA	1	144,000	Interpolated	30.1	51	66.7	692.3	
AM072KXVTJR/AA	2	144,000	Interpolated	30.1	51	66.7	692.3	
AM168HXVAFH/AA	1	168,000	Interpolated	30.1	51	66.7	716.5	
AM168HXVAFH2AA	1	168,000	Interpolated	30.1	51	66.7	716.5	
AM168HXVAJH/AA	1	168,000	Interpolated	30.1	51	66.7	719.0	
AM168HXVAJH2AA	1	168,000	Interpolated	30.1	51	66.7	719.0	
AM168HXVAFR/AA	1	168,000	Interpolated	30.1	51	66.7	727.0	
AM168HXVAFR2AA	1	168,000	Interpolated	30.1	51	66.7	727.0	
AM168HXVAJR/AA	1	168,000	Interpolated	30.1	51	66.7	727.0	
AM168HXVAJR2AA	1	168,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAFH/AA	1	192,000	Interpolated	30.1	51	66.7	727.0	
AM096KXVTFH/AA	2	192,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAFH2AA	1	192,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAJH/AA	1	192,000	Interpolated	30.1	51	66.7	727.0	
AM096KXVTJH/AA	2	192,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAJH2AA	1	192,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAFR/AA	1	192,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAFR2AA	1	192,000	Interpolated	30.1	51	66.7	727.0	
AM096KXVTFR/AA	2	192,000	Interpolated	30.1	51	66.7	727.0	
AM096KXVTJR/AA	2	192,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAJR/AA	1	192,000	Interpolated	30.1	51	66.7	727.0	
AM192HXVAJR2AA	**1**	**192,000**	**UUT-2a**	**30.1**	**51**	**66.7**	**727.0**	

Piping interconnection between multiple units must be a flexible connection

No of modules indicates multiple combinations of individual modules with flexible connection in between for listed capacity

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Table 1b. Certified Product List

S_{DS} = 2.30g @ z/h = 1.0 F_P / W_p = 1.73
S_{DS} = 2.50g @ z/h = 0.0 F_P / W_p = 1.13

Group B: DVM S Water Outdoor Unit
Mounting: Rigid Base Mount

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM038KXWDCH/AA	38,200	Interpolated	13.0	29.5	31.5	161	
AM048KXWDCH/AA	47,800	Interpolated	13.0	29.5	31.5	191	
AM055KXWDCH/AA	**54,600**	**UUT-1b**	**13.0**	**29.5**	**31.5**	**201**	
AM072HXWAFR/AA	72,000	Interpolated	21.5	30.3	39.4	353	
AM072HXWAJR/AA	72,000	Interpolated	21.5	30.3	39.4	368	
AM096HXWAFR/AA	96,000	Interpolated	21.5	30.3	39.4	353	
AM096HXWAJR/AA	96,000	Interpolated	21.5	30.3	39.4	368	
AM120HXWAFR/AA	120,000	Interpolated	21.5	30.3	39.4	353	
AM120HXWAJR/AA	**120,000**	**UUT-2b**	**21.5**	**30.3**	**39.4**	**368**	
AM192HXWAFR/AA	192,000	Interpolated	21.5	43.3	39.4	529	
AM192HXWAJR/AA	192,000	Interpolated	21.5	43.3	39.4	545	
AM240KXWAFR/AA	270,000	Interpolated	21.5	43.3	39.4	604	
AM240KXWAJR/AA	**270,000**	**UUT-3b**	**21.5**	**43.3**	**39.4**	**611**	

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Table 1c. Certified Product List

S_{DS} = 2.30g @ z/h = 1.0 F_P / W_p = 1.73
S_{DS} = 2.50g @ z/h = 0.0 F_P / W_p = 1.13

Group C: DVM Chiller Outdoor Unit
Mounting: Rigid Base Mount

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AG010KSVAJH/AA*	**120,000**	**UUT-1c**	**30.1**	**70.7**	**66.7**	**971**	
AG010KSVAFH/AA*	120,000	Interpolated	30.1	70.7	66.7	971	
AG015KSVAJH/AA*	168,000	Interpolated	30.1	70.7	66.7	986	
AG015KSVAFH/AA*	**168,000**	**UUT-2c**	**30.1**	**70.7**	**66.7**	**986**	

* Indicates requirement of seismic modification, see UUT sheet

Table 1d. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group D: DVM S Concealed and Exposed Floor Standing Indoor Unit
Mounting: Rigid Floor Mount

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM006JNFDCH/AA	**6,000**	**UUT-1d**	**37.2**	**8.7**	**23.6**	**50.7**	
AM006JNGDCH/AA	6,000	Interpolated	46.0	8.7	23.6	57.3	
AM009JNFDCH/AA	9,000	Interpolated	37.2	8.7	23.6	50.7	
AM009JNGDCH/AA	9,000	Interpolated	46.0	8.7	23.6	57.3	
AM012JNFDCH/AA	12,000	Interpolated	37.2	8.7	23.6	50.7	
AM012JNGDCH/AA	12,000	Interpolated	46.0	8.7	23.6	57.3	
AM018JNFDCH/AA	18,000	Interpolated	48.2	8.7	23.6	62.8	
AM018JNGDCH/AA	18,000	Interpolated	57.1	8.7	23.6	69.4	
AM024JNFDCH/AA	24,000	Interpolated	48.2	8.7	23.6	62.8	
AM024JNGDCH/AA	**24,000**	**UUT-2d**	**57.1**	**8.7**	**23.6**	**69.4**	

Table 1e. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group E: Outdoor Unit FRAME UB2-Single Units
Mounting: Rigid Base Mount

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM036FXMDCH/AA*	38,000	Extrapolate	13	37	47.6	220.5	
AM048FXMDCH/AA*	**48,000**	**UUT-1e**	**13**	**37**	**47.6**	**220.5**	
AM053FXMDCH/AA*	**53,000**	**UUT-2e**	**13**	**37**	**47.6**	**227.1**	
AM060MXMDCH/AA*	**60,000**	**UUT-3e**	**13**	**37**	**55.9**	**286.6**	

* Indicates requirement of seismic modification, see UUT sheet

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Table 1f. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group F: DVM S Slim Duct Indoor Unit - Frame Type: Slim 1, 2, & 3
Mounting: Suspended

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM007FNLDCH/AA	**7,500**	**UUT-1f**	**35.4**	**23.6**	**7.8**	**54**	
AM009FNLDCH/AA	9,500	Interpolated	35.4	23.6	7.8	54	
AM012FNLDCH/AA	12,000	Interpolated	35.4	23.6	7.8	54	
AM018FNLDCH/AA	**18,000**	**UUT-2f**	**43.3**	**23.6**	**7.8**	**66.1**	
AM024FNLDCH/AA	24,000	Interpolated	43.3	23.6	7.8	66.1	
AM030FNLDCH/AA	**30,000**	**UUT-3f**	**51.2**	**27.2**	**11.6**	**88.2**	
AM036FNLDCH/AA	36,000	Interpolated	51.2	27.2	11.6	88.2	
AM048FNLDCH/AA	**48,000**	**UUT-4f**	**51.2**	**27.2**	**11.6**	**91.5**	

Table 1g. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group G: DVM S High Static Pressure Ducted Indoor Unit - Frame Type: MA2
Mounting: Suspended

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM054JNHDCH/AA	54,000	UUT-1g	47.2	25.6	14.2	137.8	

Table 1h. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group H: DVM S Big Duct Indoor Unit
Mounting: Suspended

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
Samsung DVM S Series, HSP (High Static) Ducted Unit - Frame Type: Big Duct							
AM076FNHDCH/AA	**76,800**	**UUT-1h**	**48.8**	**40.9**	**18.5**	**196.2**	
AM096FNHDCH/AA	**96,000**	**UUT-2h**	**48.8**	**40.9**	**18.5**	**196.2**	
Samsung DVM S Series, OAP Duct (Outside Air Processing) Unit - Frame Type: Big Duct							
AM072JNESCH/AA	72,000	Interpolated	53.1	35.8	17.7	198.4	
AM096JNESCH/AA	**96,000**	**UUT-3h**	**53.1**	**38.8**	**17.7**	**198.4**	

Table 1i. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group I: DVM S Duct S Indoor Unit
Mounting: Suspended

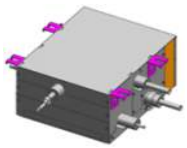
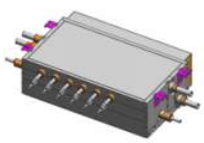
Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
Samsung DVM S Series, Duct S Ducted Unit - Frame Type: GD 1, 2, & 3							
AM006RNMDCH/AA	6,300	Extrapolated	33.4	27.6	9.8	69.0	
AM007MNMDCH/AA	**7,500**	**UUT-1i**	**33.4**	**27.6**	**9.8**	**69.0**	
AM009MNMDCH/AA	9,500	Interpolated	33.4	27.6	9.8	69.0	
AM012MNMDCH/AA	12,000	Interpolated	33.4	27.6	9.8	69.0	
AM015MNMDCH/AA	15,000	Interpolated	33.4	27.6	9.8	69.0	
AM018MNMDCH/AA	18,000	Interpolated	33.4	27.6	9.8	69.0	
AM018RNMDCH/AA	18,000	Interpolated	47.3	27.6	9.8	73.6	
AM024MNHDCH/AA	24,000	Interpolated	47.3	27.6	9.8	73.6	
AM027MNHDCH/AA	27,000	Interpolated	47.3	27.6	9.8	73.6	
AM030MNHDCH/AA	30,000	Interpolated	47.3	27.6	9.8	73.6	
AM036MNHDCH/AA*	36,000	Interpolated	51.2	27.6	11.8	101.4	
AM048MNHDCH/AA*	**48,000**	**UUT-2i**	**51.2**	**27.6**	**11.8**	**101.4**	

* Indicates requirement of seismic modification, see UUT sheet

Table 1j. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group J: Mode Control Units
Mounting: Suspended

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
MCU-S1NEK1N	**54,000**	**UUT-1j**	**13.2**	**16.1**	**7.8**	**24.3**	
MCU-S2NEK2N	96,000	Interpolated	28.7	18.4	7.7	46.3	
MCU-S4NEK3N	192,000	Interpolated	28.7	18.5	7.8	54.1	
MCU-S6NEK2N	**192,000**	**UUT-2j**	**28.7**	**18.5**	**7.8**	**62.8**	

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Table 1k. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group K: DVM S Cassette Indoor Unit

Mounting: Suspended

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
Samsung DVM S Series, 4-Way Cassette (includes Mini)							
AM005KNNDCH/AA	**5,000**	**UUT-1k**	**22.6**	**22.6**	**9.8**	**26.5**	
AM005NNNDCH/AA	5,000	Interpolated	22.6	22.6	9.8	26.5	
AM007KNNDCH/AA	7,500	Interpolated	22.6	22.6	9.8	26.5	
AM007NNNDCH/AA	7,500	Interpolated	22.6	22.6	9.8	26.5	
AM009FNNDCH/AA	9,500	Interpolated	22.6	22.6	10.3	26.5	
AM009NNNDCH/AA	9,500	Interpolated	22.6	22.6	9.8	26.5	
AM012FNNDCH/AA	12,000	Interpolated	22.6	22.6	10.3	26.5	
AM012NNNDCH/AA	12,000	Interpolated	22.6	22.6	9.8	26.5	
AM018FNNDCH/AA	18,000	Interpolated	22.6	22.6	10.3	26.5	
AM018NNNDCH/AA	18,000	Interpolated	22.6	22.6	9.8	26.5	
AM020FNNDCH/AA	20,000	Interpolated	22.6	22.6	10.3	26.5	
AM020NNNDCH/AA	20,000	Interpolated	22.6	22.6	9.8	26.5	
AM006RN4DCH/AA	6,300	Interpolated	33.1	33.1	8	33.1	
AM009FN4DCH/AA	9,000	Interpolated	33.1	33.1	8	33.1	
AM009RN4DCH/AA	9,000	Interpolated	33.1	33.1	8	33.1	
AM012FN4DCH/AA	12,000	Interpolated	33.1	33.1	8	33.1	
AM012RN4DCH/AA	12,000	Interpolated	33.1	33.1	8	33.1	
AM018FN4DCH/AA	18,000	Interpolated	33.1	33.1	8	33.1	
AM018RN4DCH/AA	18,000	Interpolated	33.1	33.1	9.7	36.4	
AM024FN4DCH/AA	24,000	Interpolated	33.1	33.1	8	33.1	
AM024RN4DCH/AA	24,000	Interpolated	33.1	33.1	9.7	36.4	
AM030FN4DCH/AA	30,000	Interpolated	33.1	33.1	11.3	40.8	
AM036FN4DCH/AA	36,000	Interpolated	33.1	33.1	11.3	40.8	
AM048FN4DCH/AA	**48,000**	**UUT-2k**	**33.1**	**33.1**	**11.3**	**40.8**	
Samsung DVM S Series, 360 Cassette							
AM009KN4DCH/AA	**9,000**	**UUT-3k**	**37.3**	**37.3**	**11.1**	**46.3**	
AM012KN4DCH/AA	12,000	Interpolated	37.3	37.3	11.1	46.3	
AM018KN4DCH/AA	18,000	Interpolated	37.3	37.3	11.1	46.3	
AM024KN4DCH/AA	24,000	Interpolated	37.3	37.3	11.1	46.3	
AM036KN4DCH/AA*	36,000	Interpolated	37.3	37.3	14.4	52.9	
AM048KN4DCH/AA*	**48,000**	**UUT-4k**	**37.3**	**37.3**	**14.4**	**52.9**	

* Indicates requirement of seismic modification, see UUT sheet

Table 1l. Certified Product List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group L: DVM S Wall-Mounted Indoor Unit

Mounting: Wall Mounted

Model Number	Nominal Capacity (Btu/h)	Tested/ Interpolated	Depth (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM005MNVDCH/AA	5,000	Extrapolate	9.7	29.5	9.8	17.9	
AM007MNVDCH/AA	7,500	Extrapolate	9.7	29.5	9.8	17.9	
AM009MNVDCH/AA	9,500	Extrapolate	9.7	29.5	9.8	18.1	
AM012MNVDCH/AA	**12,000**	**UUT-1l**	**10.3**	**32.5**	**10.3**	**21.6**	
AM015MNVDCH/AA	15,000	Interpolate	10.3	32.5	10.3	21.6	
AM018MNVDCH/AA*	18,000	Interpolate	11.6	41.9	11.9	32.2	
AM024MNVDCH/AA*	24,000	Interpolate	11.6	41.9	11.9	32.2	
AM028MNVDCH/AA*	**28,000**	**UUT-2l**	**11.6**	**41.9**	**11.9**	**32.2**	
AM032MNQDCH/AA*	**31,700**	**UUT-3l**	**9.9**	**50.4**	**13.6**	**40.8**	

* Indicates requirement of seismic modification, see UUT sheet

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Table 2a. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group A: DVM S Outdoor Unit
Mounting: Rigid Base Mount

Compressor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DS-GB052FAVBSG	69.7	58,500Btu/h	220V	6.1	Samsung	Cast Iron	**UUT-1a**
DS-GB052FBVASG	69.7	58,500Btu/h	380V	6.1	Samsung	Cast Iron	Interpolated
DS4GJ5066EVASG	78.0	73,500Btu/h	220V	7.7	Samsung	Cast Iron	Interpolated
DS-GB066FAVBSG	79.4	73,000Btu/h	380V	7.6	Samsung	Cast Iron	**UUT-2a**
DS-GB066FAVB	78.0	73,000Btu/h	380V	7.6	Samsung	Cast Iron	**UUT-3a**

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB96-14514A	73.0	Φ7x2Rx60C, Large	-	-	Samsung	Al Fin / Cu Tube	**UUT-1a**
DB96-14515A	73.0	Φ7x2Rx60C, Large	-	-	Samsung	Al Fin / Cu Tube	Interpolated
DB96-14516B	106.7	Φ7x3Rx60C, Large	-	-	Samsung	Al Fin / Cu Tube	Interpolated
DB96-20545A	127.0	Φ7.94x3Rx60C, Large	-	-	Samsung	Al Fin / Cu Tube	**UUT-2a**
DB96-21927A	141.3	Φ7x3Rx66C, Large	-	-	Samsung	Al Fin / Cu Tube	**UUT-3a**

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-03340A	0.2	-	-	NOVASEZ	ABS Plastic	**UUT-1a,**
	DB92-03752A	0.2	-	-	NOVASEZ	ABS Plastic	**UUT-2a, UUT-3a**
Hub	DB92-03342B	0.6	-	-	NOVASEZ	ABS Plastic	**UUT-3a**
	DB92-03342A	0.7	-	-	NOVASEZ	ABS Plastic	**UUT-1a, UUT-2a**
Inverter	DB92-03526C	2.7	-	-	YOUNGREEM Tech	ABS Plastic	Interpolated
	DB92-03526B	3.5	-	-	YOUNGREEM Tech	ABS Plastic	**UUT-1a**
	DB92-03526A	3.8	-	-	YOUNGREEM Tech	ABS Plastic	**UUT-2a**
	DB92-03337B	3.6	-	-	YOUNGREEM Tech	ABS Plastic	Interpolated
	DB92-03337A	3.6	-	-	YOUNGREEM Tech	ABS Plastic	**UUT-3a**
EMI	DB92-02806A	1.2	-	-	NOVASEZ	ABS Plastic	**UUT-1a, UUT-2a**
	DB93-12089D	1.7	-	-	NOVASEZ	ABS Plastic	Interpolated
	DB92-03343A	1.2	-	-	NOVASEZ	ABS Plastic	**UUT-3a**
Fan	DB92-02807B	0.4	-	-	NOVASEZ	ABS Plastic	**UUT-1a**
	DB92-02807A	0.6	-	-	NOVASEZ	ABS Plastic	**UUT-2a, UUT-3a**
	DB92-03339A	0.6	-	-	NOVASEZ	ABS Plastic	Interpolated
Comm.	DB93-13404A	0.2	-	-	NOVASEZ	ABS Plastic	**UUT-1a, UUT-2a, UUT-3a**

Expansion Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-04065A	0.1	-	-	-	SANHUA	CU	**UUT-1a**
DB62-05606A	0.6	-	-	-	SANHUA	CU	**UUT-1a, (2x) UUT-3a**
DB62-11205B	0.3	-	-	-	SANHUA	CU	**UUT-2a**
DB62-09643A	0.6	-	-	-	SANHUA	CU	**UUT-2a**
DB62-04066A	0.1	-	-	-	SANHUA	CU	**UUT-3a**

Service Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-10812A	1.1	-	-	-	DUNAN	CU	**UUT-1a, UUT-3a**
DB62-10811A	0.6	-	-	-	DUNAN	CU	**UUT-1a**
DB62-07617A	0.7	-	-	-	ESSEN	CU	**UUT-2a**
DB62-07615A	1.4	-	-	-	ESSEN	CU	Interpolated
DB62-07618A	1.7	-	-	-	ESSEN	CU	Interpolated
DB62-07613A	2.1	-	-	-	ESSEN	CU	**UUT-2a**
DB62-11366A	1.7	-	-	-	DUNAN	CU	**UUT-3a**

Pressure Sensor

Part Number	Weight (lb)	Quantity (per UUT)	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB32-00191D	0.1	1	-	-	SAGINOMIA	CU	Interpolated
DB32-00194B	0.1	-	-	-	SAGINQMIA	CU	**UUT-1a**
DB32-00193B	0.1	1	-	-	SAGINQMIA	CU	Interpolated
DB32-00195B	0.1	-	-	-	SAGINQMIA	CU	**UUT-1a**
DB32-00194A	0.1	1	-	-	SAGINQMIA	CU	**UUT-2a, UUT-3a**
DB32-00195A	0.1	1	-	-	SAGINQMIA	CU	**UUT-2a, UUT-3a**

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Table 2a. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group A: DVM S Outdoor Unit
Mounting: Rigid Base Mount

Pressure Switch

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB34-00071B	0.2	-	-	-	SHINHAN	CU	**UUT-1a, (2x) UUT-2a**
DB34-00082A	0.2	-	-	-	MATWEL	CU	**(2x) UUT-3a**

4 Way Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-02834A	1.5	-	-	-	SANHUA	CU	**UUT-1a**
DB62-03348A	2.5	-	-	-	SANHUA	CU	Interpolated
DB62-08209A	3.0	-	-	-	SANHUA	CU	**UUT-2a**
DB62-05043A	7.1	-	-	-	SANHUA	CU	**UUT-3a**

Solenoid Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-07588A	0.1	-	-	-	SANHUA	CU	**(2x) UUT-1a, (3x) UUT-2a**
DB62-04150A	0.4	-	-	-	SANHUA	CU	**(2x) UUT-1a, (2x) UUT-2a**
DB62-07588B	0.2	-	-	-	SANHUA	CU	**(3x) UUT-3a**
DB62-04149B	0.1	-	-	-	SANHUA	CU	**(2x) UUT-3a**

Subcooler

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB96-16377E	3.0	-	-	-	ALFA LAVAL	CU +STS	**UUT-1a**
DB96-18993C	3.8	-	-	-	DANFOSS	CU+STS	**UUT-2a**
DB96-20497A	6.3	-	-	-	ALFA LAVAL	CU+STS	**UUT-3a**

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Table 2b. Certified Sub-Component List

Group B: DVM S Water Outdoor Unit
Mounting: Rigid Base Mount

S_{DS} = 2.30g @ z/h = 1.0 F_P / W_p = 1.73
S_{DS} = 2.50g @ z/h = 0.0 F_P / W_p = 1.13

Compressor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
UG8T300FUBJUSG	37.5	30,500Btu/h	220V	3.2	Samsung	Cast Iron	Extrapolated
UG5T450FUEJXSG	50.7	46,500Btu/h	220V	4.9	Samsung	Cast Iron	**UUT-1b**
DS-GB052FAVBSG	69.7	58,500Btu/h	380V	6.1	Samsung	Cast Iron	Interpolated
DS-GB052FBVASG	69.7	58,500Btu/h	220V	6.1	Samsung	Cast Iron	Interpolated
DS4GJ5066EVASG	78.0	73,000Btu/h	220V	7.6	Samsung	Cast Iron	Interpolated
DS-GB066FAVBSG	79.4	73,000Btu/h	380V	7.6	Samsung	Cast Iron	**UUT-2b, UUT-3b**

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB96-22505B	16.3	-	-	-	ALFA LAVAL	Al Fin / Cu Tube	Extrapolated
DB96-22504B	20.2	-	-	-	ALFA LAVAL	Al Fin / Cu Tube	**UUT-1b**
DB96-16309D	30.0	-	-	-	ALFA LAVAL	Al Fin / Cu Tube	**UUT-2b**
DB96-16309C	41.2	-	-	-	ALFA LAVAL	Al Fin / Cu Tube	Interpolated
DB96-22740B	77.1	-	-	-	ALFA LAVAL	Al Fin / Cu Tube	**UUT-3b**

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-03322B	0.4	-	-	Samsung	ABS Plastic	**UUT-1b**
	DB92-03979A	0.2	-	-	Samsung	ABS Plastic	**UUT-2b, UUT-3b**
Water Hub	DB92-02931A	0.4	-	-	NOVASEZ	ABS Plastic	**UUT-1b, UUT2b, UUT-3b**
Hub	DB92-03342A	0.7	-	-	NOVASEZ	ABS Plastic	**UUT-2b, UUT-3b**
Inverter	DB92-03689A	4.4	-	-	YOUNGREEM Tech	ABS Plastic	Interpolated
	DB92-03691A	5.9	-	-	YOUNGREEM Tech	ABS Plastic	Interpolated
	DB92-03691A	6.3	-	-	YOUNGREEM Tech	ABS Plastic	**UUT-1b**
	DB92-03527C	4.5	-	-	YOUNGREEM Tech	ABS Plastic	**UUT-3b**
	DB92-03527A	4.5	-	-	YOUNGREEM Tech	ABS Plastic	**UUT-2b**
EMI	DB93-11110D	1.3	-	-	Sangshin Electronics	ABS Plastic	**UUT-1b**
	DB92-02806A	1.2	-	-	NOVASEZ	ABS Plastic	**UUT-3b**
	DB93-12089D	1.7	-	-	NOVASEZ	ABS Plastic	**UUT-2b**
Comm.	DB93-13404A	0.2	-	-	NOVASEZ	ABS Plastic	**UUT-2b, UUT-3b**

Check Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-06190B	0.2	-	-	-	SANHUA	CU	**UUT-1b, UUT-2b**
DB62-01400G	0.1	-	-	-	SANHUA	CU	**UUT-2b**
DB62-06187B	0.4	-	-	-	SANHUA	CU	**UUT-2b, UUT-3b**
DB62-06188B	0.3	-	-	-	SANHUA	CU	**UUT-2b, UUT-3b**
DB62-07620A	0.6	-	-	-	SANHUA	CU	**UUT-3b**

Service Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-09658A	0.6	-	-	-	SANHUA	CU	Interpolated
DB62-09654A	0.3	-	-	-	SANHUA	CU	**UUT-1b**
DB62-03173A	1.0	-	-	-	SANHUA	CU	**UUT-1b**
DB62-10812A	0.6	-	-	-	DUNAN	CU	**UUT-2b, UUT-3b**
DB62-10811A	1.1	-	-	-	DUNAN	CU	**UUT-2b**
DB62-07613A	2.2	-	-	-	ESSEN	CU	**UUT-3b**

4 Way Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-02838A	0.7	-	-	-	SANHUA	CU	**UUT-1b**
DB62-02834A	1.4	-	-	-	SANHUA	CU	**UUT-2b**
DB62-02834A	1.4	-	-	-	SANHUA	CU	Interpolated
DB62-08209A	2.8	-	-	-	SANHUA	CU	Interpolated
DB62-05043A	6.7	-	-	-	SANHUA	CU	**UUT-3b**

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Table 2b. Certified Sub-Component List

Group B: DVM S Water Outdoor Unit
Mounting: Rigid Base Mount

S_{DS} = 2.30g @ z/h = 1.0 F_P / W_p = 1.73
S_{DS} = 2.50g @ z/h = 0.0 F_P / W_p = 1.13

Valve

Part Number	*Weight (lb)*	*Nominal capacity*	*Voltage*	*HP*	*Manufacturer*	*Material*	*Interpolated / Included With Test*
DB62-07588B	0.2	-	-	-	SANHUA	CU	**UUT-1b**
DB62-04064A	0.1	-	-	-	SANHUA	CU	**UUT-1b**
DB62-04149B	0.1	-	-	-	SANHUA	CU	**UUT-1b, UUT-3b**
DB62-07588A	0.1	-	-	-	SANHUA	CU	**UUT-2b, (2x) UUT-3b**
DB62-04149A	0.1	-	-	-	SANHUA	CU	**UUT-2b**
DB62-09632A	0.7	-	-	-	SANHUA	CU	**(2x) UUT-2b**
DB62-04065A	0.1	-	-	-	SANHUA	CU	**UUT-2b,**
DB62-09633A	0.7	-	-	-	SANHUA	CU	**UUT-3b**
DB62-09071A	0.3				SAGINOMIA	CU	**UUT-2b, UUT-3b**

Main EEV Valve

Part Number	*Weight (lb)*	*Nominal capacity*	*Voltage*	*HP*	*Manufacturer*	*Material*	*Interpolated / Included With Test*
DB62-11205A	0.3	-	-	-	SANHUA	CU	**UUT-1b**
DB62-05606A	0.6	-	-	-	SANHUA	CU	**UUT-2b**
DB62-09643A	0.6	-	-	-	SANHUA	CU	**UUT-3b**

Fusible

Part Number	*Weight (lb)*	*Nominal capacity*	*Voltage*	*HP*	*Manufacturer*	*Material*	*Interpolated / Included With Test*
DB63-00448B	0.0	-	-	-	WINIX	CU	**UUT-1b, UUT-2b, UUT-3b**

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Table 2c. Certified Sub-Component List

S_{DS} = 2.30g @ z/h = 1.0 — F_P / W_p = 1.73
S_{DS} = 2.50g @ z/h = 0.0 — F_P / W_p = 1.13

Group C: DVM Chiller Outdoor Unit
Mounting: Rigid Base Mount

Compressor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DS4GJ5066EVASG	78.0	73,500Btu/h	220V	7.7	Samsung	Cast Iron	UUT-2c
DS-GB070FAVASG	82.5	77,700Btu/h	380V	8.1	Samsung	Cast Iron	UUT-1c

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB96-22260A	154.8	-	-	-	Samsung	Al Fin / Cu Tube	UUT-1c, UUT-2c

Plate Type Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB96-18184B	40.6	-	-	-	ALFA LAVAL	Stainless Steel	UUT-2c

Fan Motor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB31-00330J	44.0	-	-	0.8	SSIN	CU, Al	UUT-1c, UUT-2c
DB31-00676A	44.0	-	-	0.8	SSIN	CU, Al	UUT-1c, UUT-2c

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-03913A	0.4	-	-	Samsung	ABS Plastic	UUT-1c, UUT-2c
Hub	DB92-03342A	0.7	-	-	NOVASEZ	ABS Plastic	UUT-1c, UUT-2c
Inverter	DB92-03527A	4.5	-	-	YOUNGREEM Tech	ABS Plastic	UUT-1c
	DB92-03345B	4.6	-	-	YOUNGREEM Tech	ABS Plastic	UUT-2c
EMI	DB93-12089D	1.7	-	-	NOVASEZ	ABS Plastic	UUT-1c
	DB92-03335B	1.5	-	-	SANGSHIN ELECTRONICS CO.	ABS Plastic	UUT-2c
Fan	DB92-02807A	0.6	-	-	NOVASEZ	ABS Plastic	UUT-1c, UUT-2c
Comm.	DB93-13404A	0.2	-	-	NOVASEZ	ABS Plastic	UUT-1c, UUT-2c

Check Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-06187B	0.4	-	-	-	SANHUA	CU	UUT-1c, UUT-2c

4 Way Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-05043A	7.1	-	-	-	SANHUA	CU	UUT-1c, UUT-2c

Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-04149B	0.1	-	-	-	SANHUA	CU	(4x)UUT-1c, (4x)UUT-2c
DB62-07588B	0.2	-	-	-	SANHUA	CU	(3x)UUT-1c, (3x)UUT-2c
DB62-04066A	0.2	-	-	-	SANHUA	CU	UUT-1c, UUT-2c

Main EEV Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-05606A	0.6	-	12V (DC)	-	SANHUA	CU	UUT-1c, UUT-2c

Fusible

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB63-00448B	0.04	-	-	-	WINX	CU	UUT-1c, UUT-2c

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Table 2d. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group D: DVM S Concealed and Exposed Floor Standing Indoor Unit
Mounting: Rigid Floor Mount

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DFS96-0018A	6.4	Φ7x2Rx60C_L581	-	-	DAIHAN CLIMATE CONTROL	Al Fin / Cu Tube	**UUT-1d**
DFS96-0036B	7.0	Φ7x2Rx60C_L581	-	-	DAIHAN CLIMATE CONTROL	Al Fin / Cu Tube	Interpolated
DFS96-0056B	10.3	Φ7x2Rx60C_L860	-	-	DAIHAN CLIMATE CONTROL	Al Fin / Cu Tube	Interpolated
DFS96-0071B	10.6	Φ7x2Rx60C_L860	-	-	DAIHAN CLIMATE CONTROL	Al Fin / Cu Tube	**UUT-2d**

Fan Motor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DFS30-0005A	6.3	424W	220V	0.6	OYANG KONGJOKI	CU, Iron, Plastic, PVC, AL	**UUT-1d**
DFS30-0006A	6.3	424W	220V	0.6	OYANG KONGJOKI	CU, Iron, Plastic, PVC, AL	Interpolated
DFS30-0007A	6.3	424W	220V	0.6	OYANG KONGJOKI	CU, Iron, Plastic, PVC, AL	Interpolated
DFS30-0008A	6.5	490W	220V	0.7	OYANG KONGJOKI	CU, Iron, Plastic, PVC, AL	**UUT-2d**

Printed Circuit Board

Part Number	Weight (lb)	Nominal Capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB92-02786A	0.5	-	-	-	NOVASEZ	ABS Plastic	**UUT-1d, UUT-2d**

Expansion Valve

Part Number	Weight (lb)	Nominal Capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-11471A	0.4	-	-	-	SANHUA	Cu	**UUT-1d**
DB62-11472A	0.5	-	-	-	SANHUA	Cu	**UUT-2d**

Service Valve

Part Number	Weight (lb)	Nominal Capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DFS96-1001A	0.3	-	-	-	DONGJOO METAL	Cu	**UUT-1d**
DFS96-2001B	0.1	-	-	-	DONGJOO METAL	Cu	**UUT-1d**
DFS96-1003A	0.4	-	-	-	DONGJOO METAL	Cu	**UUT-2d**
DFS96-2003B	0.2	-	-	-	DONGJOO METAL	Cu	**UUT-2d**

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Table 2e. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group E: Outdoor Unit FRAME UB2-Single Units
Mounting: Rigid Base Mount

Compressor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
UG5T450FUEJX_	50.7	46,500 Btu/h	220V	4.87	Samsung	Cast Iron	UUT-1e, UUT-2e
DS-GB052FBVA	69.5	58,500 Btu/h	220V	6.12	Samsung	Cast Iron	UUT-3e

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB75-00506C	25.2	Φ7 x 2R x 56C	-	-	Samsung	Al Fin / Cu Tube	UUT-1e
DB75-00527A	32.1	Φ8 x 2R x 56C	-	-	Samsung	Al Fin / Cu Tube	UUT-2e
DB96-19525A	28.1	Φ7 x 2.5R x 66C	-	-	Jiangsu Clean & Cool Seiko Technology Co., Ltd. (Seiko)	Al Fin / Cu Tube	UUT-3e

Fan Motor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB31-00579	4.6	125W	310V	0.17	SCD	Al	UUT-1e, UUT-2e
DB31-00643	6.6	139W	310V	0.19	SCD	Al	UUT-3e

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-03322	0.4	-	-	Samsung	ABS Plastic	UUT-1e, UUT-2e, UUT-3e
		0.4	-	-	XINAN	ABS Plastic	UUT-1e, UUT-2e, UUT-3e
EMI	DB93-11110	1.8	-	-	Sangshin Electronics	ABS Plastic	UUT-1e, UUT-2e, UUT-3e
		1.8	-	-	XINAN	ABS Plastic	UUT-1e, UUT-2e, UUT-3e
Inverter	DB93-11113	2.1	-	-	NELCOM	ABS Plastic	UUT-1e, UUT-2e
	DB92-03687	1.6	-	-	XINAN	ABS Plastic	UUT-3e

Expansion Valve

Description	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
EEV	DB62-05606A	0.6	-	-	SANHUA	Cu	UUT-1e, UUT-2e, UUT-3e
EEV	DB62-04064A	0.6	-	-	SANHUA	Cu	UUT-1e, UUT-2e
EEV	DB62-04065A	0.6	-	-	SANHUA	Cu	UUT-3e

Service Valve

Description	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
Valve,Service	DB62-09659A	0.5	-	-	SANHUA	Cu	UUT-1e, UUT-2e
Valve,Service	DB62-09660A	0.5	-	-	SANHUA	Cu	UUT-1e, UUT-2e
Valve,Service	DB62-04750A	0.6	-	-	SANHUA	Cu	UUT-3e
Valve,Service	DB62-05630A	0.8	-	-	SANHUA	Cu	UUT-3e

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Table 2f. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group F: DVM S Slim Duct Indoor Unit - Frame Type: Slim 1, 2, & 3

Mounting: Suspended

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	Manufacturer	Material	Interpolated / Included With Test
DB96-16704A	5.5	Φ7 x 3R x 12C	-	YWSZ	Al Fin / Cu Tube	**UUT-1f**
DB96-05122A	7.4	Φ7 x 3R x 12C	-	YWSZ	Al Fin / Cu Tube	**UUT-2f**
DB96-15711A	8.3	Φ7 x 2R x 14C	-	Jiangsu Clean & Cool Seiko Technology Co., Ltd.	Al Fin / Cu Tube	**UUT-3f**
DB96-15712A	12.4	Φ7 x 3R x 14C	-	Jiangsu Clean & Cool Seiko Technology Co., Ltd.	Al Fin / Cu Tube	**UUT-4f**

Fan Motor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB31-00377	7.1	25W	208-230 V	0.03	CRBSM	Cu + Al	**UUT-1f**
DB31-00314	8.3	60W	208-230 V	0.08	CRBSM	Cu + Al	**UUT-2f**
DB31-00427	9.7	183W	DC 311V	0.24	SPG	Cu + Al	**UUT-3, UUT-4f**

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-02781	0.5	-	Samsung	ABS Plastic	**UUT-2f, UUT-4f**
	DB92-02784	0.4	-	Samsung	ABS Plastic	**UUT-1f, UUT-3f**

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Table 2g. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group G: DVM S High Static Pressure Ducted Indoor Unit - Frame Type: MA2

Mounting: Suspended

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	Manufacturer	Material	Interpolated / Included With Test
DB96-23018A	15.7	Φ7 x 4R x 16C	-	YWSZ	Al Fin / Cu Tube	**UUT-1g**

Fan Motor

Part Number	Weight (lb)	Nominal capacity	Voltage	Manufacturer	Material	Interpolated / Included With Test
DB31-00603	9.7	183W	DC310V	SINJUN	Cu + Al	**UUT-1g**

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-02784	0.4	-	Samsung	ABS Plastic	**UUT-1g**

Table 2h. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group H: DVM S Big Duct Indoor Unit

Mounting: Suspended

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	Manufacturer	Material	Interpolated / Included With Test
DB96-18507A	27.0	-	-	HANCHANG	Al Fin / Cu Tube	**UUT-1h**
DB96-15610B	27.0	-	-	HANCHANG	Al Fin / Cu Tube	**UUT-2h**
DB96-20826A	15.0	-	-	Jiangsu Clean & Cool Seiko Technology Co., Ltd.	Al Fin / Cu Tube	**UUT-3h**

Fan Motor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB31-00593B	26.5	630W	SC310	0.8	SPG	Cu + Al	**UUT-1h, UUT-2h**
DB31-00659_	26.5	630W	DC310	0.8	SPG	Cu + Al	**UUT-3h**

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-02784_	0.4	-	-	Samsung	ABS Plastic	**UUT-1h, UUT-2h, UUT-3h**
EMI	DB93-12108A	0.5	-	-	NOVASEZ	ABS Plastic	**UUT-1h, UUT-2h, UUT-3h**
Driver	DB93-12676B	2.0	-	-	NOVASEZ	ABS Plastic	**UUT-1h, UUT-2h**

Expansion Valve

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB62-05606A	0.60	-	-	-	SANHUA	CU	**UUT-1h, UUT-2h, UUT-3h**

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Table 2i. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group I: DVM S Duct S Indoor Unit

Mounting: Suspended

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB96-19577A	10.7	Φ7 x 3R x 16C	-	-	YWSZ	Al Fin / Cu Tube	**UUT-1i**
DB96-19576A	13.3	Φ7 x 3R x 16C	-	-	YWSZ	Al Fin / Cu Tube	Interpolated
DB96-19575A	14.8	Φ7 x 3R x 18C	-	-	YWSZ	Al Fin / Cu Tube	**UUT-2i**

Fan Motor

Part Number	Weight (lb)	Nominal capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB31-00639	7.7	153W	DC 310V	0.2	SPG	Cu + Al	**UUT-1i**
DB31-00641	7.1	244W	DC 310V	0.3	NIDECS	Cu + Al	**UUT-2i**

Printed Circuit Board

DB96-17305B	Part Number	Weight (lb)	Nominal Capacity	HP	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-03321*	0.4	-	-	XINAN	ABS Plastic	**UUT-1i, UUT-2i**

Table 2j. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group J: Mode Control Units

Mounting: Suspended

SOL V/V

Description	Pat Number	Weight (lb)	Nominal capacity	Manufacturer	Material	Interpolated / Included With Test
VPV Type	DB62-11038A	0.6	-	SAGINOMIA	SUS	UUT-1j, UUT-2j

EEV V/V

Description	Pat Number	Weight (lb)	Nominal capacity	Manufacturer	Material	Interpolated / Included With Test
DPF(Q) Type	DB62-04066A	0.2	-	SANHUA	SUS	UUT-1j, UUT-2j
DPF(Q) Type	DB62-04064A	0.1	-	SANHUA	SUS	UUT-1j, UUT-2j

GAS V/V

Description	Pat Number	Weight (lb)	Nominal capacity	Manufacturer	Material	Interpolated / Included With Test
FDF Type	DB33-00069A	0.1	-	SANHUA	SUS	UUT-1j, UUT-2j

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-02787	0.5	-	NOVASEZ	ABS Plastic	UUT-1j, UUT-2j

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Table 2k. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group K: DVM S Cassette Indoor Unit

Mounting: Suspended

Heat Exchanger

Part Number	Weight (lb)	Nominal Capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB96-17305B	5.24	Φ7 x 2R x 8C	-	-	Samsung	Al Fin / Cu Tube	UUT-1k
DB96-17305A	5.55	Φ7 x 2R x 8C	-	-	Samsung	Al Fin / Cu Tube	Interpolated
DB96-17384A	6.15	Φ7 x 2R x 10C	-	-	Samsung	Al Fin / Cu Tube	Interpolated
DB96-22191A	6.64	Φ7 x 2R x 8C	-	-	Samsung	Al Fin / Cu Tube	UUT-3k
DB96-17703B	7.78	Φ7 x 2R x 8C	-	-	Samsung	Al Fin / Cu Tube	Interpolated
DB96-15326A	7.78	Φ7 x 2R x 8C	-	-	Samsung	Al Fin / Cu Tube	Interpolated
DB96-15440A	9.62	Φ7 x 2R x 10C	-	-	Samsung	Al Fin / Cu Tube	Interpolated
DB96-22190A	9.96	Φ7 x 2R x 12C	-	-	Samsung	Al Fin / Cu Tube	UUT-4k
DB96-13911B	11.45	Φ7 x 2R x 12C	-	-	Samsung	Al Fin / Cu Tube	UUT-2k

Fan Motor

Part Number	Weight (lb)	Nominal Capacity	Voltage	HP	Manufacturer	Material	Interpolated / Included With Test
DB31-00577	4.63	97W	DC310V	0.13	SSCD	Cu + Al	UUT-1k, UUT-3k
DB31-00578	3.53	65W	DC310V	0.09	SSCD	Cu + Al	UUT-2k, UUT-4k

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity		Manufacturer	Material	Interpolated / Included With Test
Main	DB92-02783	0.51	-	-	Samsung	ABS Plastic	UUT-1k, UUT-2k
	DB92-04034	0.63	-	-	NOVASEZ	ABS Plastic	UUT-3k, UUT-4k

Table 2l. Certified Sub-Component List

S_{DS} = 2.50g @ z/h = 1.0 F_P / W_p = 1.88

Group L: DVM S Wall-Mounted Indoor Unit
Mounting: Wall Mounted

Heat Exchanger

Part Number	Weight (lb)	Nominal capacity	Voltage	Manufacturer	Material	Interpolated / Included With Test
DB96-19003A	0.8	Φ7 x 1R x 4C	-	YWSZ	Al Fin / Cu Tube	**UUT-2l**
DB96-19016D	1.1	Φ7 x 2R x 4C	-	YWSZ	Al Fin / Cu Tube	Interpolated
DB96-19002A	1.6	Φ7 x 1R x 8C	-	YWSZ	Al Fin / Cu Tube	**UUT-2l**
DB96-19001A	2.4	Φ7 x 2R x 6C	-	YWSZ	Al Fin / Cu Tube	**UUT-2l**
DB96-18994D	4.0	Φ7 x 2R x 10C	-	YWSZ	Al Fin / Cu Tube	**UUT-2l**
DB96-19016C	0.9	Φ7 x 2R x 3C	-	FENGRU	Al Fin / Cu Tube	Interpolated
DB96-19013C	1.8	Φ7 x 2R x 6C	-	FENGRU	Al Fin / Cu Tube	**UUT-1l**
DB96-19015E	2.0	Φ7 x 2R x 7C	-	FENGRU	Al Fin / Cu Tube	Interpolated
DB96-19015F	2.1	Φ7 x 2R x 8C	-	FENGRU	Al Fin / Cu Tube	Interpolated
DB96-19012G	2.4	Φ7 x 2R x 8C	-	FENGRU	Al Fin / Cu Tube	**UUT-1l**
DB96-10764A	2.7	Φ7 x 2R x 6C	-	CLEANE	Al Fin / Cu Tube	**UUT-3l**
DB96-23472A	5.7	Φ7 x 2R x 12C	-	CLEANE	Al Fin / Cu Tube	**UUT-3l**

Fan Motor

Part Number	Weight (lb)	Nominal Capacity	Voltage	Manufacturer	Material	Interpolated / Included With Test
DB31-00636	1.8	27W	DC310V	NIDECS	Cu + Al	**UUT-1l**
DB31-00637	1.9	27W	DC310V	NIDECS	Cu + Al	**UUT-2l**
DB31-00332	3.5	58W	DC310V	NIDECS	Cu + Al	**UUT-3l**

Printed Circuit Board

Description	Part Number	Weight (lb)	Nominal Capacity	Manufacturer	Material	Interpolated / Included With Test
Main	DB92-03504	0.3	-	Samsung	ABS Plastic	**UUT-1l, UUT-2l, UUT-3l**

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UUT-1a Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1913.0
Testing Unit Num: Q1913-01-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM072FXVAJH/AA	72,000	443.2	Rigid Base Mounted	X	Front - Back	11.7	30.1	34.6	66.7
				Y	Side - Side	16.6			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Six (6) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	Seismic brackets added to mounting
Test Anomaly	None

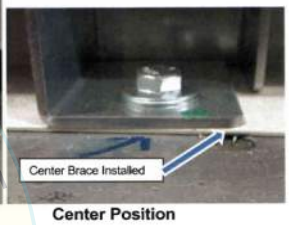
Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.75 2.85	1.0 0.0	4.40g	3.30g	1.91g	0.77g



Figure 1a.1: Unit on the shake table


Outside Corners



Center Position

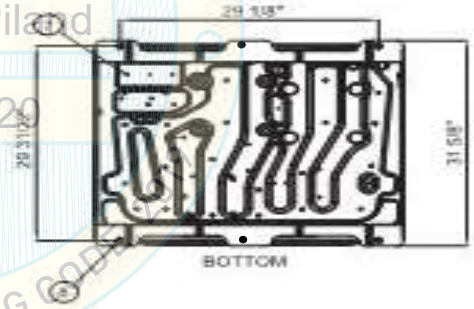


Figure 1a.2: Mounting Details (Plan View and Photo)

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Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1a Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Compressor	DS-GB052FAVBSG	Samsung	Cast Iron
Heat Exchanger	DB96-14514A	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00330J	Samsung	CU
Printed Circuit Board: Main	DB92-03340A	NOVASEZ	ABS Plastic
Printed Circuit Board: Hub	DB92-03342A	NOVASEZ	ABS Plastic
Printed Circuit Board: Inverter	DB92-03526B	YOUNGREEM Tech	ABS Plastic
Printed Circuit Board: EMI	DB92-02806A	NOVASEZ	ABS Plastic
Printed Circuit Board: Fan	DB92-02807B	NOVASEZ	ABS Plastic
Printed Circuit Board: Comm.	DB93-13404A	NOVASEZ	ABS Plastic
Expansion Valve	DB62-04065A	SANHUA	CU
Expansion Valve	DB62-05606A	SANHUA	CU
Service Valve	DB62-10812A	DUNAN	CU
Service Valve	DB62-10811A	DUNAN	CU
Pressure Sensor	DB32-00194B	SAGINQMIA	CU
Pressure Sensor	DB32-00195B	SAGINQMIA	CU
Pressure Switch	DB34-00071B	SHINHAN	CU
4 Way Valve	DB62-02834A	SANHUA	CU
(2x) Solenoid Valve	DB62-07588A	SANHUA	CU
(2x) Solenoid Valve	DB62-04150A	SANHUA	CU
Subcooler	DB96-16377E	ALFA LAVAL	CU +STS

UUT-2a Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1913.0
Testing Unit Num: Q1913-02-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AM192HXVAJR2AA	192,000	727.0	Rigid Base Mounted	X	Front - Back	8.8	30.1	51	66.7
				Y	Side - Side	8.5			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Six (6) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	Seismic brackets added to mounting
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.75 2.85	1.0 0.0	4.40g	3.30g	1.91g	0.77g

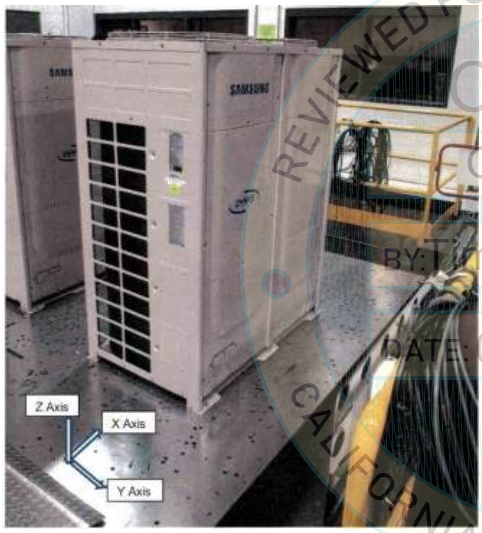


Figure 2a.1: Unit on the shake table



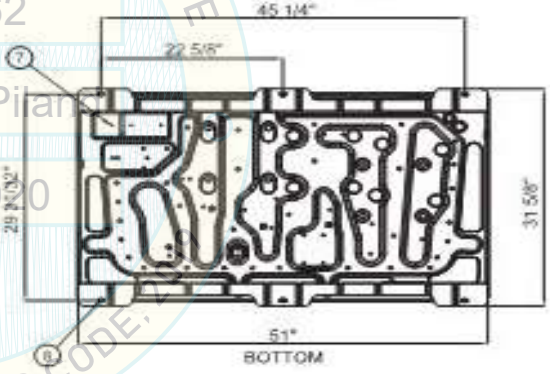


Figure 2a.2: Mounting Details (Plan View and Photo)

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Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2a Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Compressor	DS-GB066FAVBSG	Samsung	Cast Iron
Heat Exchanger	DB96-20545A	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00675A	Samsung	Al
Fan Motor	DB31-00675B	Samsung	Al
Printed Circuit Board: Main	DB92-03752A	NOVASEZ	ABS Plastic
Printed Circuit Board: Hub	DB92-03342A	NOVASEZ	ABS Plastic
Printed Circuit Board: Inverter	DB92-03526A	YOUNGREEM Tech	ABS Plastic
Printed Circuit Board: EMI	DB92-02806A	NOVASEZ	ABS Plastic
Printed Circuit Board: Fan	DB92-02807A	NOVASEZ	ABS Plastic
Printed Circuit Board: Comm.	DB93-13404A	NOVASEZ	ABS Plastic
Expansion Valve	DB62-11205B	SANHUA	CU
Expansion Valve	DB62-09643A	SANHUA	CU
Service Valve	DB62-07617A	ESSEN	CU
Service Valve	DB62-07613A	ESSEN	CU
Pressure Sensor	DB32-00194A	SAGINQMIA	CU
Pressure Sensor	DB32-00195A	SAGINQMIA	CU
(2x) Pressure Switch	DB34-00071B	SHINHAN	CU
4 Way Valve	DB62-08209A	SANHUA	CU
(2x) Solenoid Valve	DB62-07588A	SANHUA	CU
(2x) Solenoid Valve	DB62-04150A	SANHUA	CU
Subcooler	DB96-18993C	DANFOSS	CU +STS

UUT-1b Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1934.0
Testing Unit Num: Q1934-01-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AM055KXWDCH/AA	54,600	201	Rigid Base Mounted	X	Front - Back	12.9	13.0	29.5	31.5
				Y	Side - Side	18.2			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	Seismic brackets added to mounting
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.30 2.50	1.0 0.0	3.68g	2.76g	1.68g	0.68g



Figure 1b.1: Unit on the shake table



Figure 1b.2: Mounting Details

REVIEWED FOR CODE COMPLIANCE
OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE: 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1b Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Compressor	UG5T450FUEJXSG	Samsung	Cast Iron
Heat Exchanger	DB96-22504B	Samsung	Al Fin / Cu Tube
Printed Circuit Board: Main	DB92-03322B	Samsung	ABS Plastic
Printed Circuit Board: Water Hub	DB92-02931A	NOVASEZ	ABS Plastic
Printed Circuit Board: Inverter	DB92-03691A	YOUNGREEM Tech	ABS Plastic
Printed Circuit Board: EMI	DB93-11110D	Sangshin Electronics	ABS Plastic
Check Valve	DB62-06190B	SANHUA	CU
Service Valve	DB62-09654A	SANHUA	CU
Service Valve	DB62-03173A	SANHUA	CU
4 Way Valve	DB62-02838A	SANHUA	CU
Valve	DB62-07588B	SANHUA	CU
Valve	DB62-04064A	SANHUA	CU
Valve	DB62-04149B	SANHUA	CU
Main EEV Valve	DB62-11205A	SANHUA	CU
Fusible	DB63-00448B	WINIX	CU

UUT-2b Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-05-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AM120HXWAJR/AA	120,000	368	Rigid Base Mounted	X	Front - Back	11.1	21.5	30.3	39.4
				Y	Side - Side	10.3			
				Z	Vertical	30.9			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.65 3.10	1.0 0.0	4.24g	3.18g	2.08g	0.84g



Figure 2b.1: Unit on the shake table

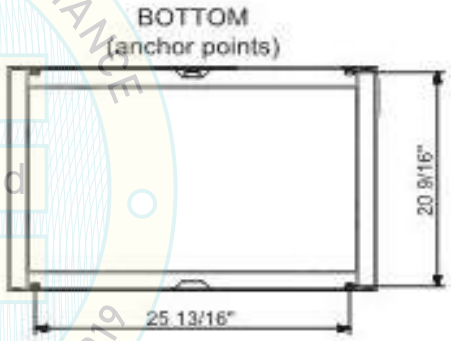


Figure 2b.2: Mounting Detail (Plan View)

REVIEWED FOR CODE COMPLIANCE
OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2b Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Compressor	DS-GB066FAVBSG	Samsung	Cast Iron
Heat Exchanger	DB96-16309D	Samsung	Al Fin / Cu Tube
Printed Circuit Board: Main	DB92-03979A	Samsung	ABS Plastic
Printed Circuit Board: Water Hub	DB92-02931A	NOVASEZ	ABS Plastic
Printed Circuit Board: Hub	DB92-03342A	NOVASEZ	ABS Plastic
Printed Circuit Board: Inverter	DB92-03527A	YOUNGREEM Tech	ABS Plastic
Printed Circuit Board: EMI	DB93-12089D	NOVASEZ	ABS Plastic
Printed Circuit Board: Comm	DB93-13404A	NOVASEZ	ABS Plastic
Check Valve	DB62-06190B	SANHUA	CU
Check Valve	DB62-01400G	SANHUA	CU
Check Valve	DB62-06187B	SANHUA	CU
Check Valve	DB62-06188B	SANHUA	CU
Service Valve	DB62-10812A	DUNAN	CU
Service Valve	DB62-10811A	DUNAN	CU
4 Way Valve	DB62-02834A	SANHUA	CU
Valve	DB62-07588A	SANHUA	CU
Valve	DB62-04149A	SANHUA	CU
(2x) Valve	DB62-09632A	SANHUA	CU
Valve	DB62-04065A	SANHUA	CU
Valve	DB62-09071A	SAGINOMIA	CU
Main EEV Valve	DB62-05606A	SANHUA	CU
Fusible	DB63-00448B	WINIX	CU

UUT-3b Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0, rev2
Testing Unit Num: Q1750-06-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM240KXWAJR/AA	270,000	611	Rigid Base Mounted	X	Front - Back	>33.3	21.5	43.3	39.4
				Y	Side - Side	13.6			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.65 3.10	1.0 0.0	4.24g	3.18g	2.08g	0.84g

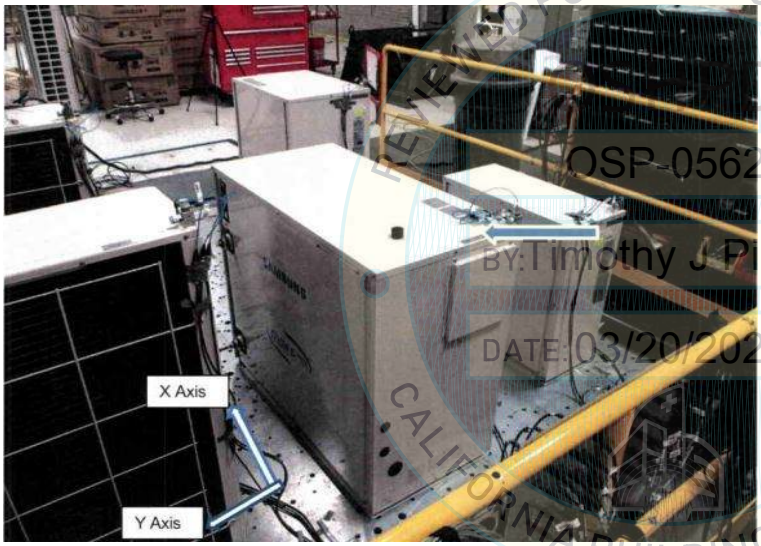


Figure 3b.1: Unit on the shake table

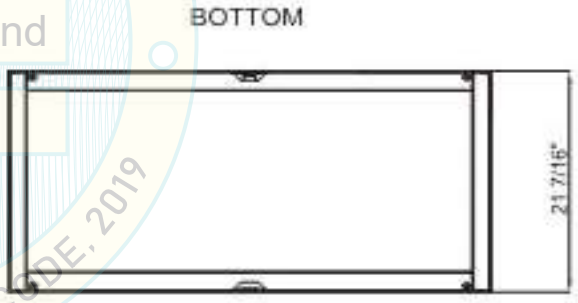


Figure 3b.2: Mounting Detail (Plan View)

REVIEWED FOR CODE COMPLIANCE
OSP-0562
BY: Timothy J. Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-3b Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Compressor	DS-GB066FAVBSG	Samsung	Cast Iron
Heat Exchanger	DB96-22740B	Samsung	Al Fin / Cu Tube
Printed Circuit Board: Main	DB92-03979A	Samsung	ABS Plastic
Printed Circuit Board: Water Hub	DB92-02931A	NOVASEZ	ABS Plastic
Printed Circuit Board: Hub	DB92-03342A	NOVASEZ	ABS Plastic
Printed Circuit Board: Inverter	DB92-03527C	YOUNGREEM Tech	ABS Plastic
Printed Circuit Board: EMI	DB92-02806A	NOVASEZ	ABS Plastic
Printed Circuit Board: Comm	DB93-13404A	NOVASEZ	ABS Plastic
Check Valve	DB62-06187B	SANHUA	CU
Check Valve	DB62-06188B	SANHUA	CU
Check Valve	DB62-07620A	SANHUA	CU
Service Valve	DB62-10812A	DUNAN	CU
(3x) Service Valve	DB62-07613A	ESSEN	CU
4 Way Valve	DB62-05043A	SANHUA	CU
Valve	DB62-04149B	SANHUA	CU
(2x) Valve	DB62-07588A	SANHUA	CU
Valve	DB62-09633A	SANHUA	CU
Valve	DB62-09071A	SAGINOMIA	CU
Main EEV Valve	DB62-09643A	SANHUA	CU
Fusible	DB63-00448B	WINIX	CU

UUT-1c Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1934.0
Testing Unit Num: Q1934-02-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AG010KSVAJH/AA	168,000	971	Rigid Base Mounted	X	Front - Back	10.3	30.1	70.7	66.7
				Y	Side - Side	7.4			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Eight (8) - 3/8"Ø Grade 5 bolts with double washers in mounting holes
Seismic Modifications	Four (4) additional mounting holes with seismic brackets on each anchorage point.
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.30 2.50	1.0 0.0	3.68g	2.76g	1.68g	0.68g



Figure 1c.1: Unit on the shake table



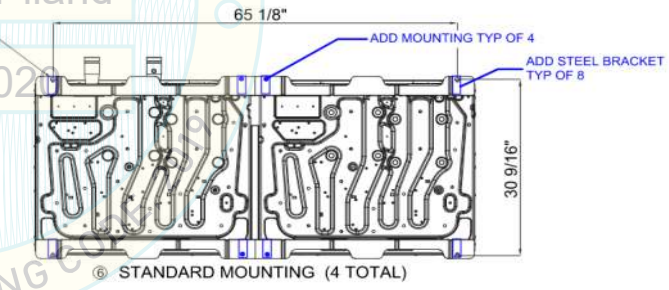


Figure 1c.2: Mounting Detail (Plan View and Photo) with Seismic Modifications

REVIEWED FOR CODE COMPLIANCE
OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE 2016

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1c Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Compressor	DS-GB070FAVASG	Samsung	Cast Iron
Heat Exchanger	DB96-22260A	Samsung	Al Fin / Cu Tube
Plate Type Heat Exchanger	DB96-18184B	ALFA LAVAL	Stainless Steel
Fan Motor	DB31-00330J	SSIN	CU, Al
Fan Motor	DB31-00676A	SSIN	CU, Al
Printed Circuit Board: Main	DB92-03913A	Samsung	ABS Plastic
Printed Circuit Board: Hub	DB92-03342A	NOVASEZ	ABS Plastic
Printed Circuit Board: Inverter	DB92-03527A	YOUNGREEM Tech	ABS Plastic
Printed Circuit Board: EMI	DB93-12089D	NOVASEZ	ABS Plastic
Printed Circuit Board: Fan	DB93-12089D	NOVASEZ	ABS Plastic
Printed Circuit Board: Comm	DB93-13404A	NOVASEZ	ABS Plastic
Check Valve	DB62-06190B	SANHUA	CU
4 Way Valve	DB62-02834A	SANHUA	CU
(4x) Valve	DB62-07588A	SANHUA	CU
(3x) Valve	DB62-04149A	SANHUA	CU
Valve	DB62-09632A	SANHUA	CU
Main EEV Valve	DB62-05606A	SANHUA	CU
Fusible	DB63-00448B	WINIX	CU

UUT-2c Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1913.0
Testing Unit Num: Q1913-06-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AG015KSVAFH/AA	168,000	986	Rigid Base Mounted	X	Front - Back	7.4	30.1	70.7	66.7
				Y	Side - Side	7.8			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

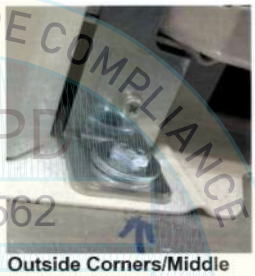
Attachment Method	Twelve (12) - 3/8"Ø Grade 5 bolts with double washers in mounting holes
Seismic Modifications	Eight (8) additional mounting holes with seismic brackets on each anchorage point.
Test Anomaly	None

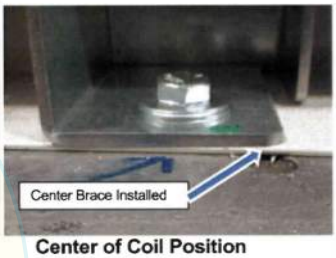
Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.75 2.85	1.0 0.0	4.40g	3.30g	1.91g	0.77g



Figure 2c.1: Unit on the shake table


Outside Corners/Middle



Center of Coil Position

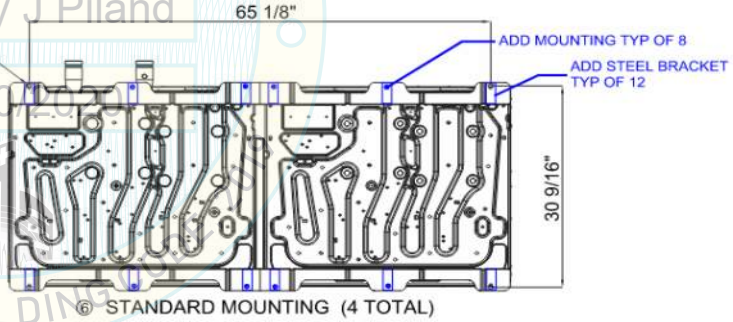


Figure 2c.2: Mounting Detail (Plan View and Photo) with Seismic Modifications

REVIEWED FOR CODE COMPLIANCE
OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2c Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Compressor	DS4GJ5066EVASG	Samsung	Cast Iron
Heat Exchanger	DB96-22260A	Samsung	Al Fin / Cu Tube
Plate Type Heat Exchanger	DB96-18184B	ALFA LAVAL	Stainless Steel
Fan Motor	DB31-00330J	SSIN	CU, Al
Fan Motor	DB31-00676A	SSIN	CU, Al
Printed Circuit Board: Main	DB92-03913A	Samsung	ABS Plastic
Printed Circuit Board: Hub	DB92-03342A	NOVASEZ	ABS Plastic
Printed Circuit Board: Inverter	DB92-03527A	YOUNGREEM Tech	ABS Plastic
Printed Circuit Board: EMI	DB93-12089D	NOVASEZ	ABS Plastic
Printed Circuit Board: Fan	DB93-12089D	NOVASEZ	ABS Plastic
Printed Circuit Board: Comm	DB93-13404A	NOVASEZ	ABS Plastic
Check Valve	DB62-06190B	SANHUA	CU
4 Way Valve	DB62-02834A	SANHUA	CU
(4x) Valve	DB62-07588A	SANHUA	CU
(3x) Valve	DB62-04149A	SANHUA	CU
Valve	DB62-09632A	SANHUA	CU
Main EEV Valve	DB62-05606A	SANHUA	CU
Fusible	DB63-00448B	WINIX	CU

UUT-1d Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-09-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM006JNFDCH/AA	6,000	50.7	Rigid Base Mounted	X	Front - Back	28.9	37.2	8.7	23.6
				Y	Side - Side	31.9			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.90 3.20	1.0 0.0	4.64g	3.48g	2.14g	0.86g

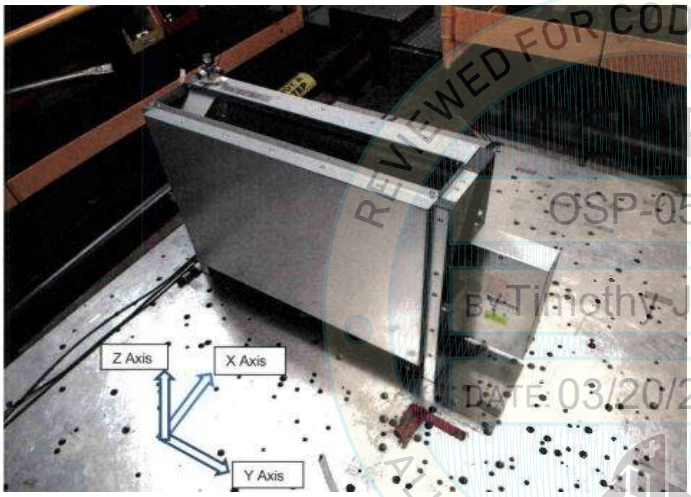


Figure 1d.1: Unit on the shake table

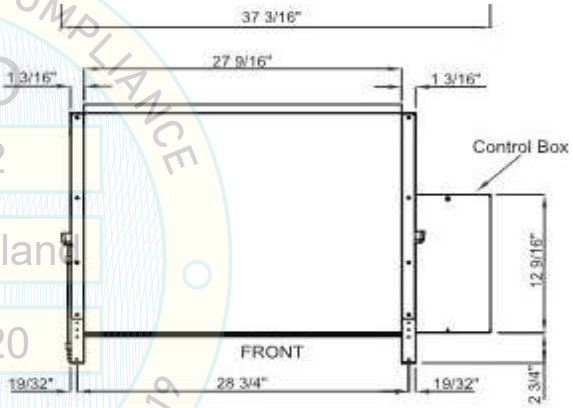


Figure 1d.2: Mounting Detail (Elevation)

REVIEWED FOR CODE COMPLIANCE
OSHPD
OSP-0562
BY Timothy J Piland
DATE 03/20/2020
ACCEPTABLE FOR CBC 2019 BUILDING CODE

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1d Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DFS96-0018A	DAIHAN CLIMATE CONTROL	Al Fin / Cu Tube
Fan Motor	DFS30-0005A	OYANG KONGJOKI	CU, Iron, Plastic, PVC, AL
Printed Circuit Board	DB92-02786A	NOVASEZ	ABS Plastic
Expansion Valve	DB62-11471A	SANHUA	CU
Service Valve	DFS96-1001A	DONGJOO METAL	CU
Service Valve	DFS96-2001B	DONGJOO METAL	CU

UUT-2d Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-10-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM024JNGDCH/AA	24,000	69.4	Rigid Base Mounted	X	Front - Back	29.1	57.1	8.7	23.6
				Y	Side - Side	31.4			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	2.90 3.20	1.0 0.0	4.64g	3.48g	2.14g	0.86g

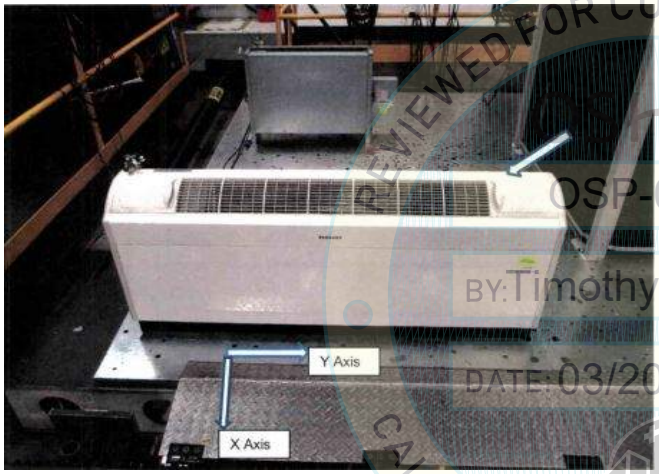


Figure 2d.1: Unit on the shake table

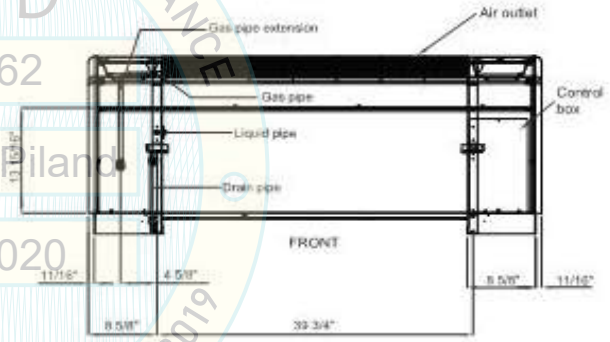


Figure 2d.2: Mounting Detail (Elevation)

REVIEWED FOR CODE COMPLIANCE
OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2d Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DFS96-0071B	DAIHAN CLIMATE CONTROL	Al Fin / Cu Tube
Fan Motor	DFS30-0008A	OYANG KONGJOKI	CU, Iron, Plastic, PVC, AL
Printed Circuit Board	DB92-02786A	NOVASEZ	ABS Plastic
Expansion Valve	DB62-11472A	SANHUA	CU
Service Valve	DFS96-1003A	DONGJOO METAL	CU
Service Valve	DFS96-2003B	DONGJOO METAL	CU

UUT-1e Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-11-01-02

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM048FXMDCH/AA	48,000	220.5	Rigid Base Mounted	X	Front - Back	>33.3	13	37	47.6
				Y	Side - Side	12.9			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed with exception of length which was measured from different datum
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Grade 5 bolts with double washer in mounting holes
Seismic Modifications	Two (2) - L2x2x1/8 braces to table with 3/8"Ø Grade 5 bolt and double washer. Four (4) - L2x2x1/8 x 4" long aluminum angle bracket (one each corner). Bracket attached to unit with two (2) - #12 SMS and secure to table with 3/8"Ø Grade 5 bolt and flat washer.
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.00 2.95	1.0 0.0	4.80g	3.60g	1.98g	0.8g

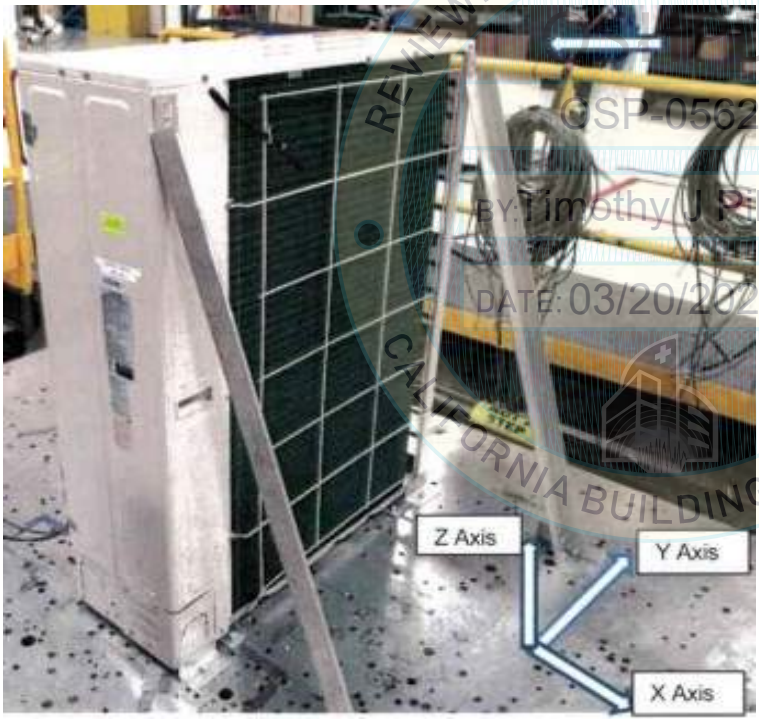


Figure 1e.1: Unit on the shake table

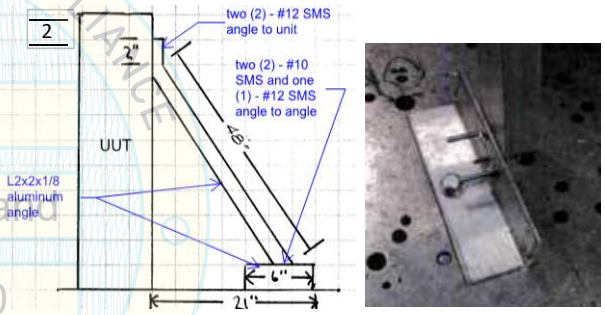


Figure 1e.3: Seismic Modifications (SSK and Photo)

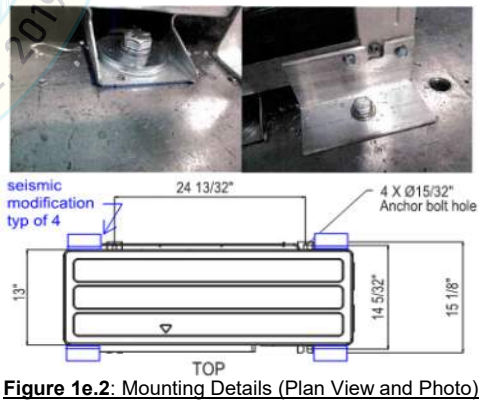


Figure 1e.2: Mounting Details (Plan View and Photo)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1e Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Compressor	UG5T450FUEJX*	Samsung	Cast Iron
Heat Exchanger	DB75-00506C	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00579*	SCD	Al
Printed Circuit Board: Main	DB92-03322*	Samsung	ABS Plastic
Printed Circuit Board: Main	DB92-03323*	XINAN	ABS Plastic
Printed Circuit Board: EMI	DB93-11110*	Sangshin Electronics	ABS Plastic
Printed Circuit Board: EMI	DB93-11110*	XINAN	ABS Plastic
Printed Circuit Board: Inverter	DB93-11113*	NELCOM	ABS Plastic
Expansion Valve	DB62-05606A	SANHUA	CU
Expansion Valve	DB62-04064A	SANHUA	CU
Service Valve	DB62-09659A	SANHUA	CU
Service Valve	DB62-09660A	SANHUA	CU

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OSP-0562
BY: Timothy Pollard
DATE: 03/20/2020
CALIFORNIA BUILDING CODE 2019

UUT-2e Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-12-01-02

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AM053FXMDCH/AA	53,000	227.1	Rigid Base Mounted	X	Front - Back	>33.3	13	37	47.6
				Y	Side - Side	20.7			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed with exception of length which was measured from different datum
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	Two (2) - L2x2x1/8 braces to table with 3/8"Ø Grade 5 bolt and double washer. Four (4) - L2x2x1/8 x 4" long aluminum angle bracket (one each corner). Bracket attached to unit with two (2) - #12 SMS and secure to table with 3/8"Ø Grade 5 bolt and flat washer.
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.00 2.95	1.0 0.0	4.80g	3.60g	1.98g	0.80g

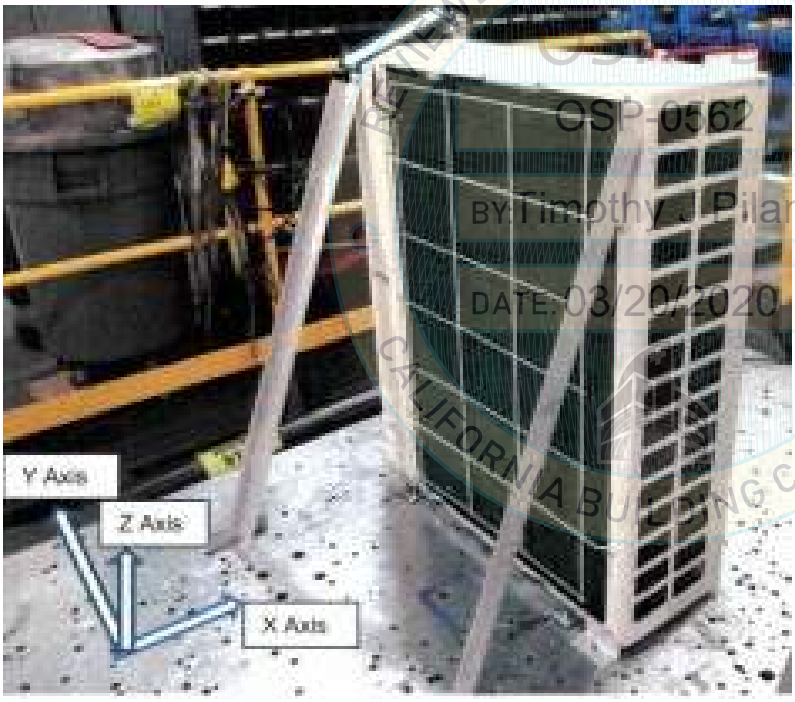


Figure 2e.1: Unit on the shake table

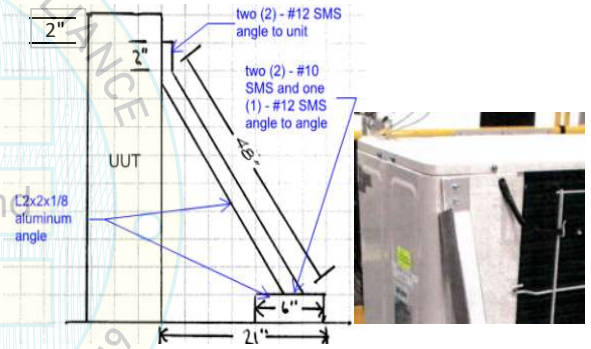


Figure 1e.3: Seismic Modifications (SSK and Photo)

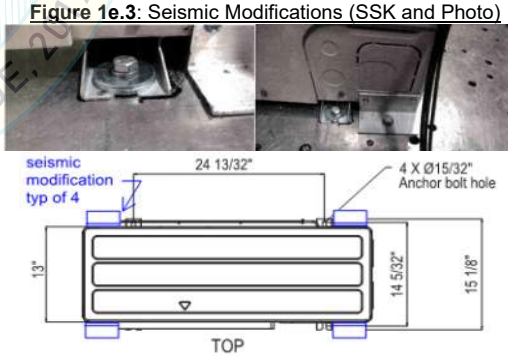


Figure 2e.2: Mounting Details (Plan View and Photo)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2e Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Compressor	UG5T450FUEJX*	Samsung	Cast Iron
Heat Exchanger	DB75-00527A	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00579*	SCD	Al
Printed Circuit Board: Main	DB92-03322*	Samsung	ABS Plastic
Printed Circuit Board: Main	DB92-03323*	XINAN	ABS Plastic
Printed Circuit Board: EMI	DB93-11110*	Sangshin Electronics	ABS Plastic
Printed Circuit Board: EMI	DB93-11110*	XINAN	ABS Plastic
Printed Circuit Board: Inverter	DB93-11113*	NELCOM	ABS Plastic
Expansion Valve	DB62-05606A	SANHUA	CU
Expansion Valve	DB62-04064A	SANHUA	CU
Service Valve	DB62-09659A	SANHUA	CU
Service Valve	DB62-09660A	SANHUA	CU

UUT-3e Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-13-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM060MXMDCH/AA	60,000	286.6	Rigid Base Mounted	X	Front - Back	10.2	13	37	55.9
				Y	Side - Side	18.4			
				Z	Vertical	>33.3			

Unit dimensions and weight are catalog values, test report values within 5% of listed with exception of length which was measured from different datum
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	(4) 3/8"Ø Grade 5 bolts in mounting holes
Seismic Modifications	Two (2) - L2x2x1/8 braces to table with 3/8"Ø Grade 5 bolt and double washer. Four (4) - L2x2x1/8 x 4" long aluminum angle bracket (one each corner). Bracket attached to unit with two (2) - #12 SMS and secure to table with 3/8"Ø Grade 5 bolt and flat washer.
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.00 2.95	1.0 0.0	4.80g	3.60g	1.98g	0.80g

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BY: Timothy J Piland
DATE: 03/20/2020
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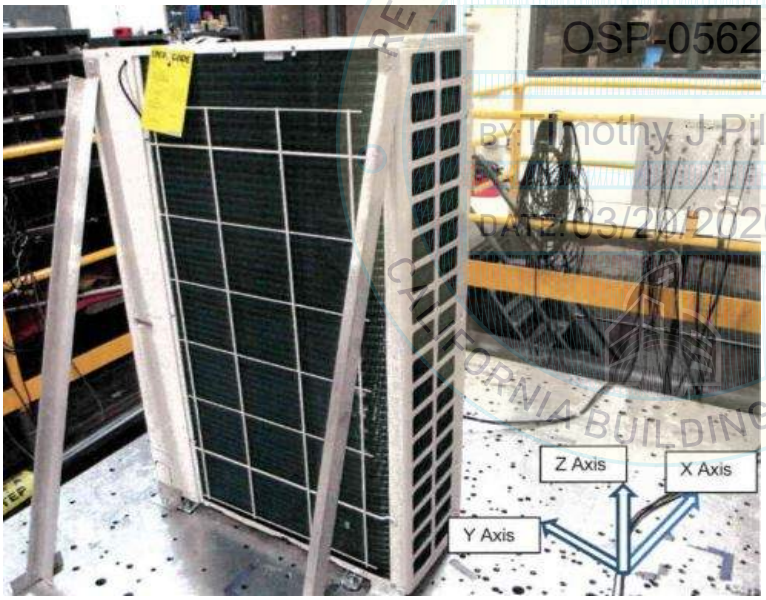


Figure 3e.1: Unit on the shake table

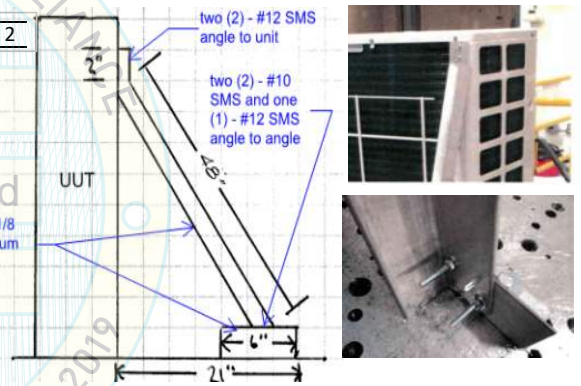


Figure 1e.3: Seismic Modifications (SSK and Photo)

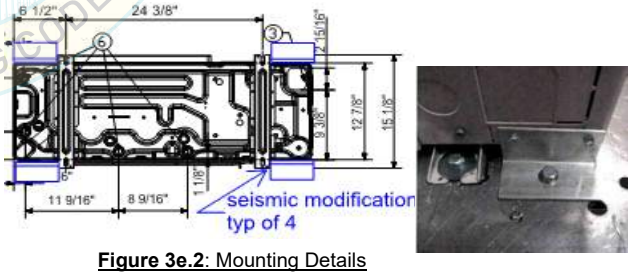


Figure 3e.2: Mounting Details

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-3e Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Compressor	DS-GB052FBVA	Samsung	Cast Iron
Heat Exchanger	DB96-19525A	Seiko	Al Fin / Cu Tube
Fan Motor	DB31-00643*	SCD	Al
Printed Circuit Board: Main	DB92-03322*	Samsung	ABS Plastic
Printed Circuit Board: Main	DB92-03323*	XINAN	ABS Plastic
Printed Circuit Board: EMI	DB93-11110*	Sangshin Electronics	ABS Plastic
Printed Circuit Board: EMI	DB93-11110*	XINAN	ABS Plastic
Printed Circuit Board: Inverter	DB92-03687*	XINAN	ABS Plastic
Expansion Valve	DB62-05606A	SANHUA	CU
Expansion Valve	DB62-04065A	SANHUA	CU
Service Valve	DB62-04750A	SANHUA	CU
Service Valve	DB62-05630A	SANHUA	CU

UUT-1f Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-14-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM007FNLDCH/AA	7,500	54	Suspended	X	Front - Back	n/a	35.4	23.6	7.8
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 2.95	1.0 0.0	4.96g	3.72g	1.98g	0.8g

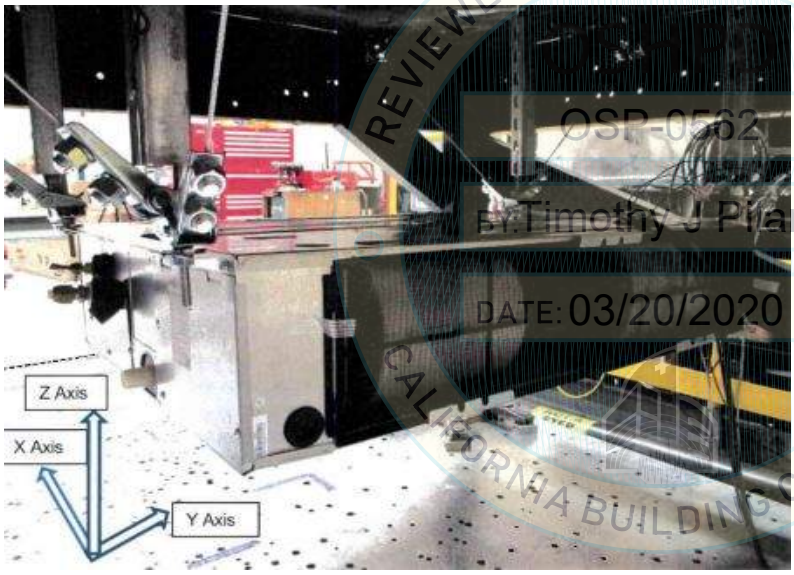


Figure 1f.1: Unit on the shake table

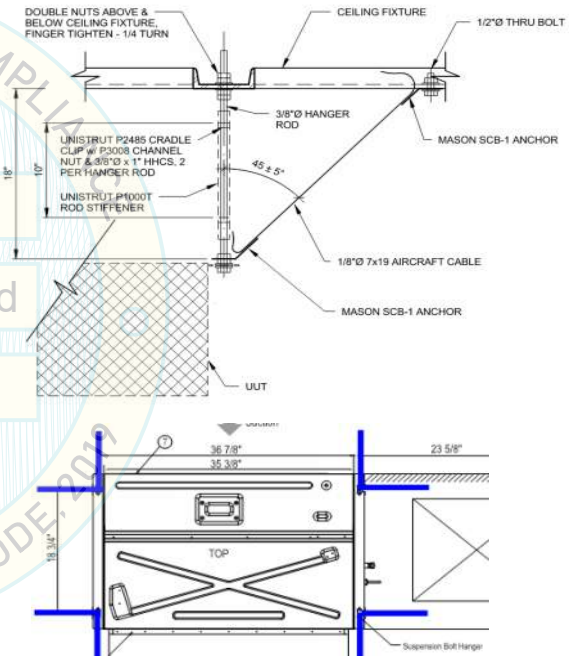


Figure 1f.2: Mounting Detail (Elevation and Plan)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1f Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-16704A	YWSZ	Al Fin / Cu Tube
Fan Motor	DB31-00377*	CRBSM	Cu + Al
Printed Circuit Board: Main	DB92-02784*	Samsung	ABS Plastic

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By:Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

UUT-2f Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-15-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM018FNLDCH/AA	18,000	66.1	Suspended	X	Front - Back	n/a	43.3	23.6	7.8
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05 2.95	1.0 0.0	4.88g	3.66g	1.98g	0.80g

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CALIFORNIA BUILDING CODE, 2019

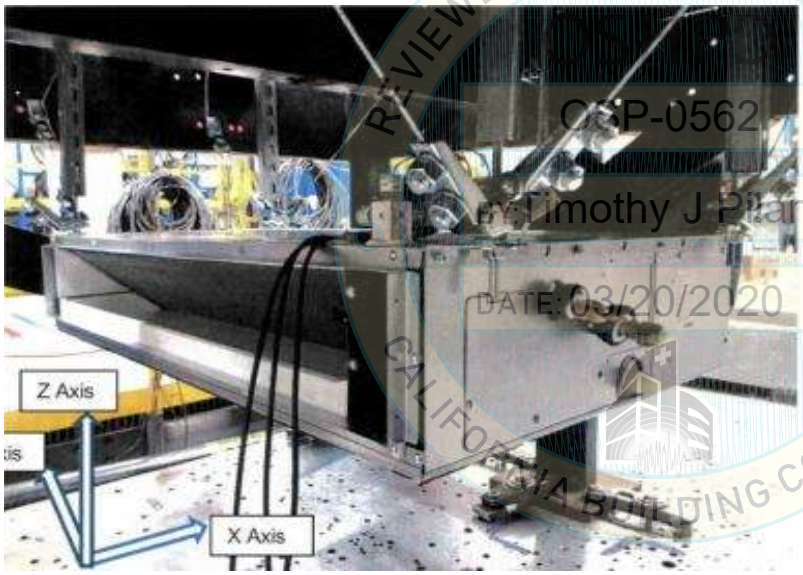


Figure 2f.1: Unit on the shake table

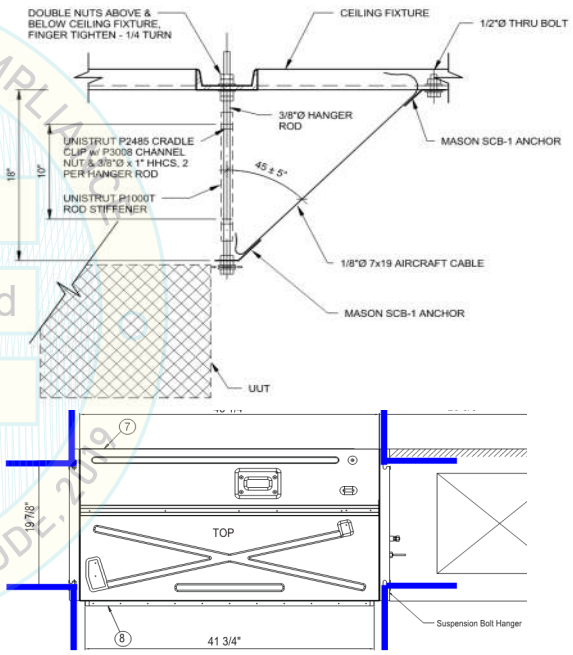


Figure 2f.2: Mounting Detail (Elevation and Plan)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2f Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-05122A	YWSZ	Al Fin / Cu Tube
Fan Motor	DB31-00314*	CRBSM	Cu + Al
Printed Circuit Board: Main	DB92-02781*	Samsung	ABS Plastic

UUT-3f Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-16-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM030FNLDCH/AA	30,000	88.2	Suspended	X	Front - Back	n/a	51.2	27.2	11.6
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 2.95	1.0 0.0	4.96g	3.72g	1.98g	0.80g

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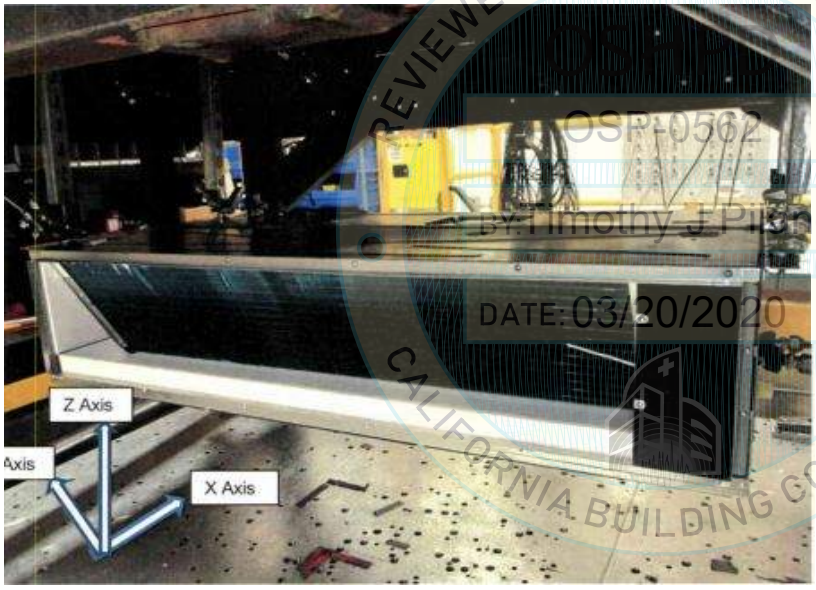


Figure 3f.1: Unit on the shake table

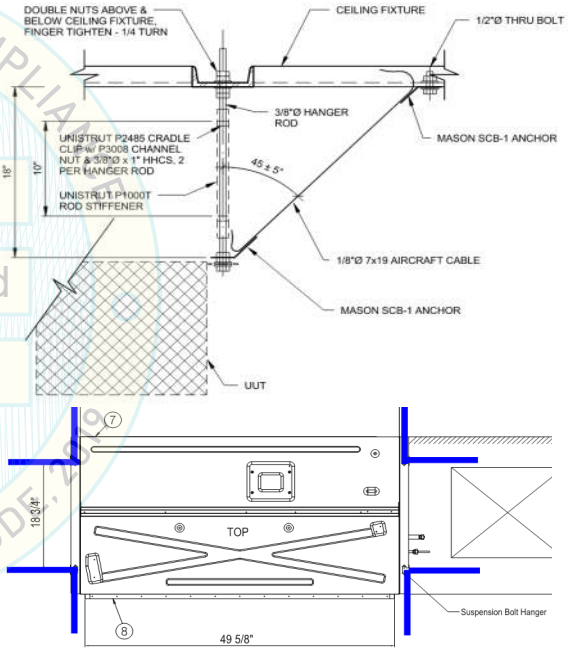


Figure 3f.2: Mounting Detail (Plan and Elevation)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-3f Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-15711A	Jiangsu Clean & Cool Seiko Technology Co., Ltd.	Al Fin / Cu Tube
Fan Motor	DB31-00427*	SPG	Cu + Al
Printed Circuit Board: Main	DB92-02784*	Samsung	ABS Plastic

UUT-4f Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-17-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM048FNLDCH/AA	48,000	91.5	Suspended	X	Front - Back	n/a	51.2	27.2	11.6
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 3.00	1.0 0.0	4.96g	3.72g	2.01g	0.81g

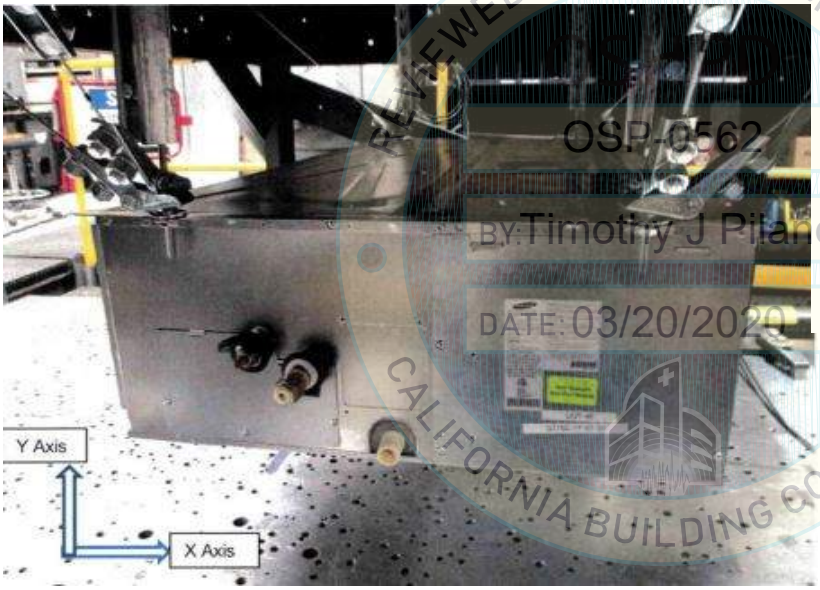


Figure 4f.1: Unit on the shake table

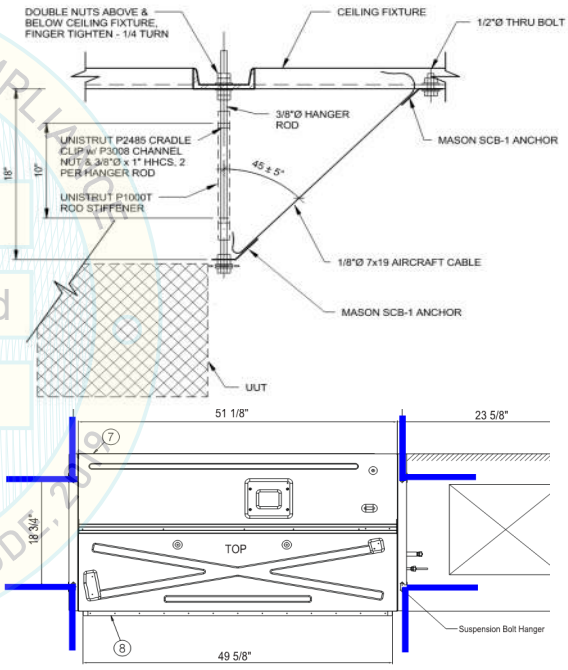


Figure 4f.2: Mounting Detail (Plan and Elevation)

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BY: Timothy J Pillard
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-4f Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-15712A	Jiangsu Clean & Cool Seiko Technology Co., Ltd.	Al Fin / Cu Tube
Fan Motor	DB31-00427*	SPG	Cu + Al
Printed Circuit Board: Main	DB92-02781*	Samsung	ABS Plastic

UUT-1g Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-18-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM054JNHDCH/AA	54,000	137.8	Suspended	X	Front - Back	n/a	47.2	25.6	14.2
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 2.95	1.0 0.0	4.96g	3.72g	1.98g	0.80g



Figure 1g.1: Unit on the shake table

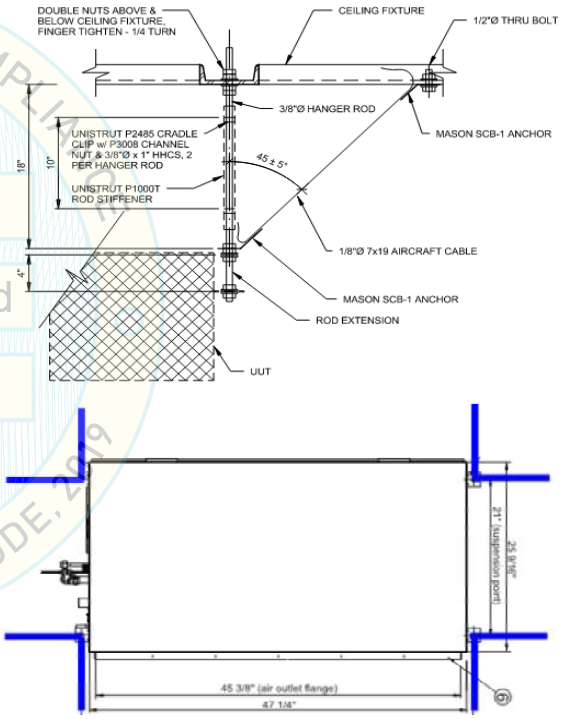


Figure 1g.2: Mounting Detail (Plan and Elevation)

REVIEWED FOR CODE COMPLIANCE
OSP-0562
BY: Timothy J. Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1g Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-23018A	YWSZ	Al Fin / Cu Tube
Fan Motor	DB31-00603*	SINJUN	Cu + Al
Printed Circuit Board: Main	DB92-02784*	Samsung	ABS Plastic

UUT-1h Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-19-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM076FNHDCH/AA	76,800	196.2	Suspended	X	Front - Back	n/a	48.8	40.9	18.5
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10	1.0	4.96g	3.72g	2.08g	0.84g

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OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2016

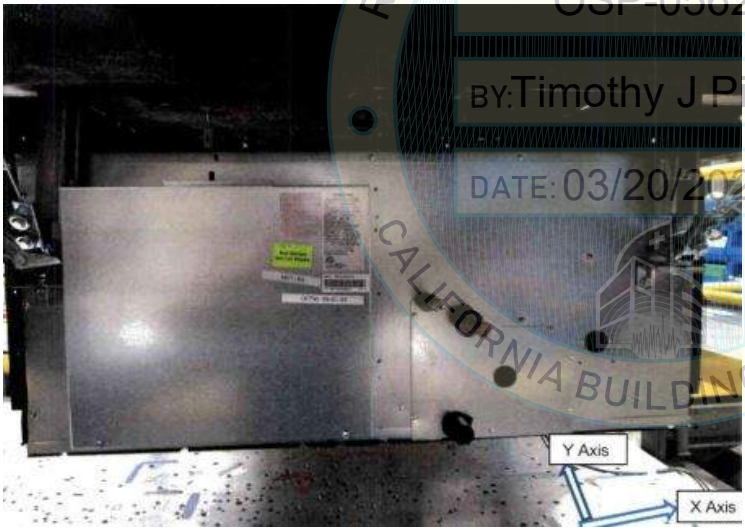


Figure 1h.1: Unit on the shake table

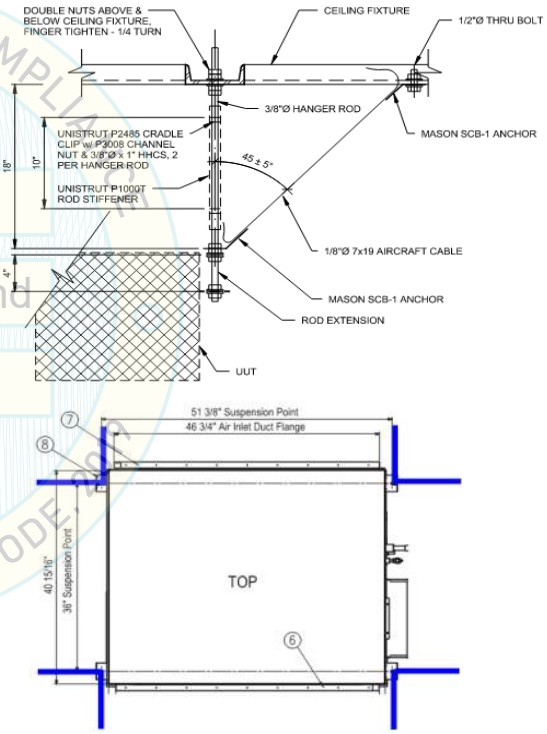


Figure 1h.2: Mounting Detail (Plan and Elevation)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1h Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-18507A	HANCHANG	Al Fin / Cu Tube
Fan Motor	DB31-00593B	SPG	Cu + Al
Printed Circuit Board: Main	DB92-02784*	Samsung	ABS Plastic
Printed Circuit Board: EMI	DB93-12108A	NOVASEZ	ABS Plastic
Printed Circuit Board: Driver	DB93-12676B	NOVASEZ	ABS Plastic
Expansion Valve	DB62-05606A	SANHUA	CU

UUT-2h Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-20-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM096FNHDCH/AA	96,000	196.2	Suspended	X	Front - Back	n/a	48.8	40.9	18.5
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05 3.00	1.0 0.0	4.88g	3.66g	2.01g	0.81g

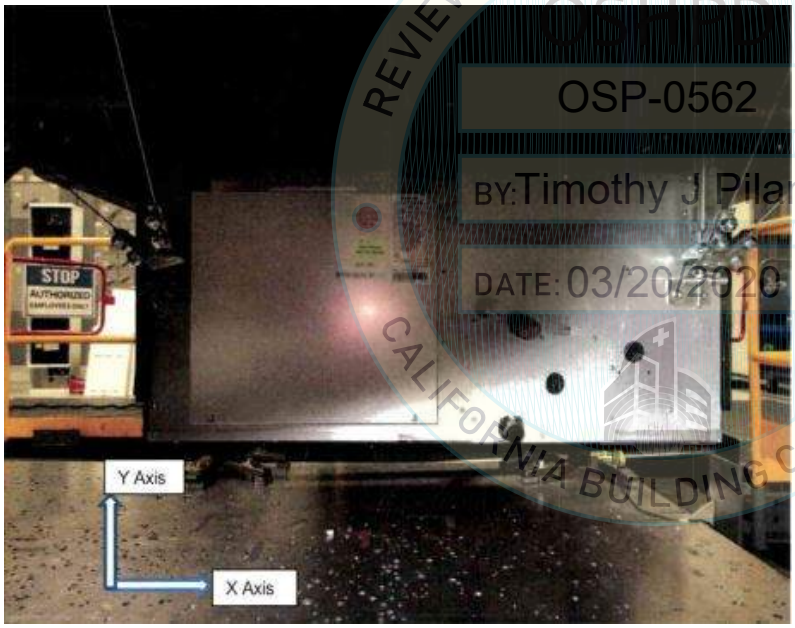


Figure 2h.1: Unit on the shake table

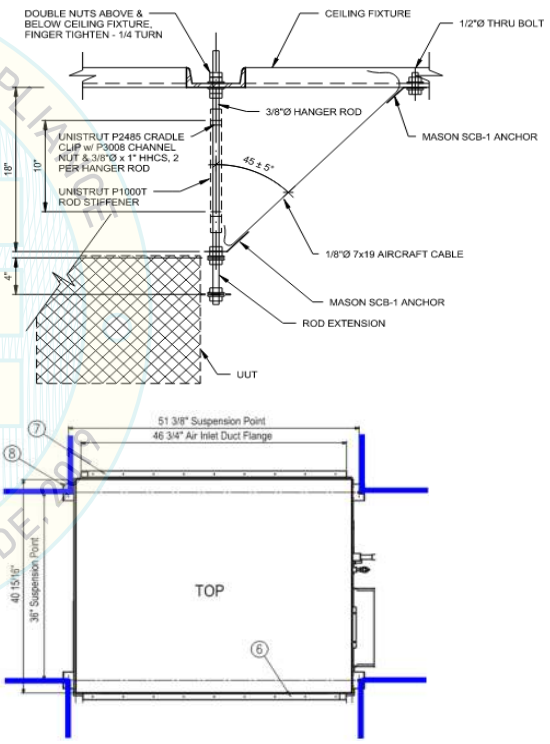


Figure 2h.2: Mounting Detail (Plan and Elevation)

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OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2016

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2h Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-15610B	HANCHANG	Al Fin / Cu Tube
Fan Motor	DB31-00593B	SPG	Cu + Al
Printed Circuit Board: Main	DB92-02784*	Samsung	ABS Plastic
Printed Circuit Board: EMI	DB93-12108A	NOVASEZ	ABS Plastic
Printed Circuit Board: Driver	DB93-12676B	NOVASEZ	ABS Plastic
Expansion Valve	DB62-05606A	SANHUA	CU

UUT-3h Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-21-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM096JNESCH/AA	96,000	198.4	Suspended	X	Front - Back	n/a	53.1	38.8	17.7
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed with exception of width which was measured at different datum
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05 3.00	1.0 0.0	4.88g	3.66g	2.01g	0.81g

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OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

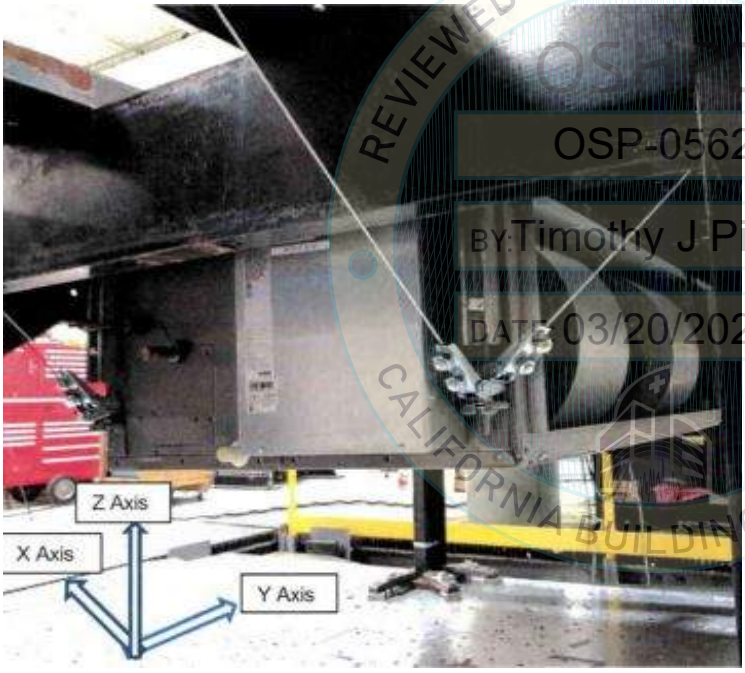


Figure 3h.1: Unit on the shake table

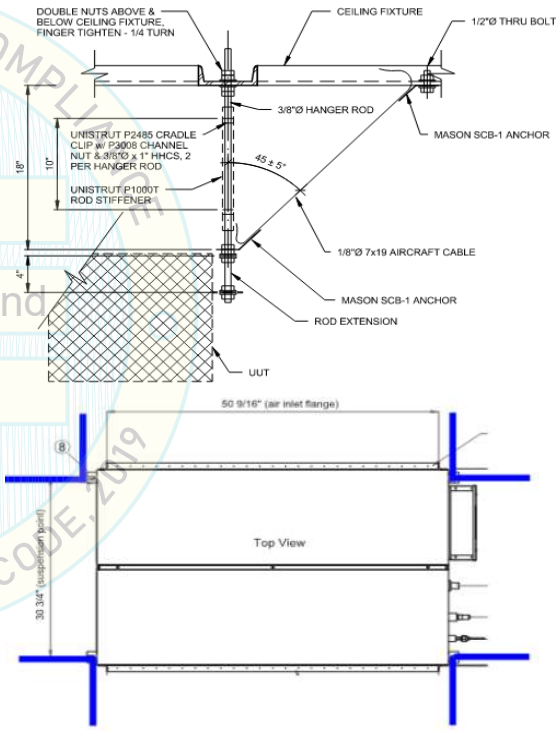


Figure 3h.2: Mounting Detail (Plan and Elevation)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-3h Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-20826A	Jiangsu Clean & Cool Seiko Technology Co., Ltd.	Al Fin / Cu Tube
Fan Motor	DB31-00659*	SPG	Cu + Al
Printed Circuit Board: Main	DB92-02784*	Samsung	ABS Plastic
Printed Circuit Board: EMI	DB93-12108A	NOVASEZ	ABS Plastic
Expansion Valve	DB62-05606A	SANHUA	CU

UUT-1i Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-22-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM007MNMDCH/AA	7,500	69.0	Suspended	X	Front - Back	n/a	33.4	27.6	9.8
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions are catalog values, test report values within 5% of listed with exception of length and width which was measured at different datums
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05 2.95	1.0 0.0	4.88g	3.66g	1.98g	0.80g

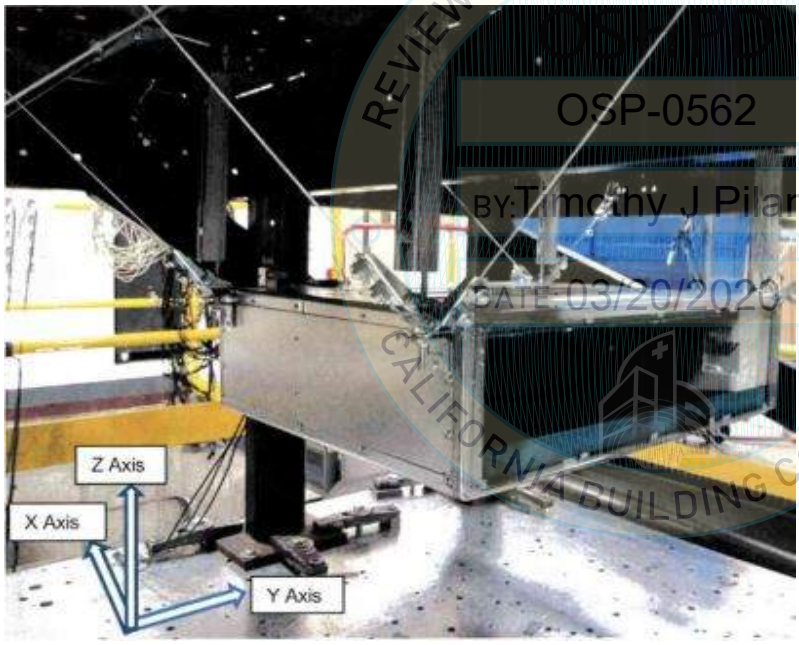


Figure 1i.1: Unit on the shake table

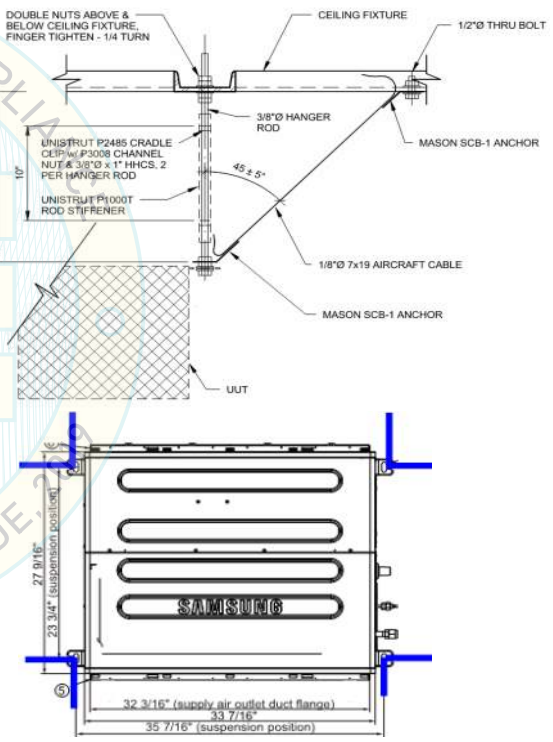


Figure 1i.2: Mounting Detail (Plan and Elevation)

REVIEWED FOR CODE COMPLIANCE
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1i Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-19577A	YWSZ	Al Fin / Cu Tube
Fan Motor	DB31-00639*	SPG	Cu + Al
Printed Circuit Board: Main	DB92-03321*	XINAN	ABS Plastic

UUT-2i Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-23-01-02

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM048MNHDCH/AA	48,000	101.4	Suspended	X	Front - Back	n/a	51.2	27.6	11.8
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed with exception of length which was measured at different datum
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	(2) additional #12 SMS were added to each mounting ear, see note below
Test Anomaly	Decorative filter panel (<1 lb) fell during test. Sub-component does not provide any structural resistance and is excluded from certification

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05 2.95	1.0 0.0	4.88g	3.66g	1.98g	0.80g

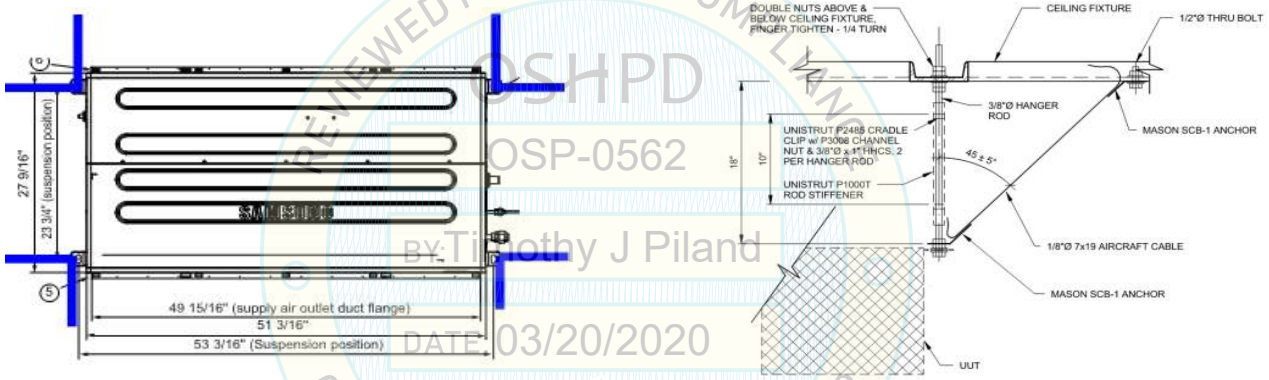


Figure 2i.2: Mounting Detail (Plan and Elevation)

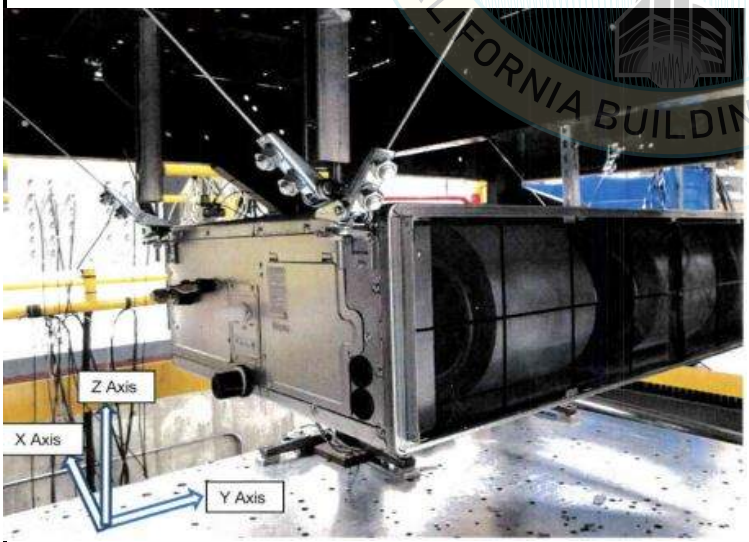


Figure 2i.1: Unit on the shake table



Figure 2i.3: Seismic Modifications

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2i Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-19575A	YWSZ	Al Fin / Cu Tube
Fan Motor	DB31-00641*	NIDECS	Cu + Al
Printed Circuit Board: Main	DB92-03321*	XINAN	ABS Plastic

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OSHPD
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

UUT-1j Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-24-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
MCU-S1NEK1N	54,000	24.3	Suspended	X	Front - Back	n/a	13.2	16.1	7.8
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 2.95	1.0 0.0	4.96g	3.72g	1.98g	0.8g

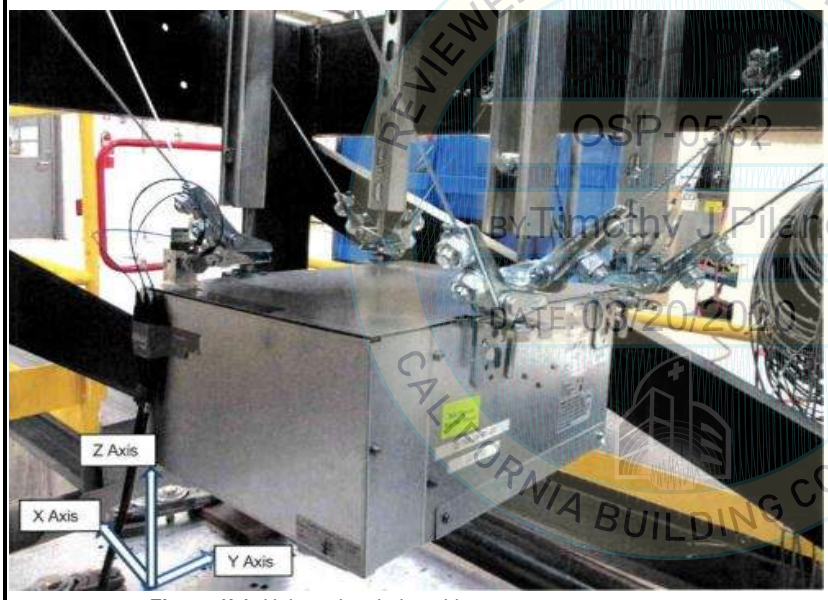


Figure 1j.1: Unit on the shake table

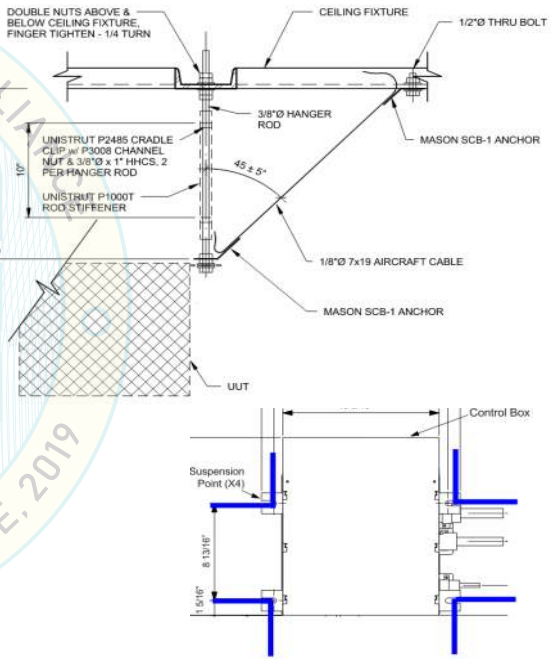


Figure 1j.2: Mounting Detail (Plan and Elevation)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1j Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
SOL V/V	DB62-11038A	SAGINOMIA	SUS
EEV V/V	DB62-04066A	SANHUA	SUS
EEV V/V	DB62-04064A	SANHUA	SUS
GAS V/V	DB33-00069A	SANHUA	SUS
Printed Circuit Board: Main	DB92-02787*	NOVASEZ	ABS Plastic

REVIEWED FOR CODE COMPLIANCE
OSP-0562
BY Timothy J. Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

UUT-2j Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-25-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
MCU-S6NEK2N	192,000	62.8	Suspended	X	Front - Back	n/a	28.7	18.5	7.8
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed with exception of length which was measured at different datum
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 2.95	1.0 0.0	4.96g	3.72g	1.98g	0.80g

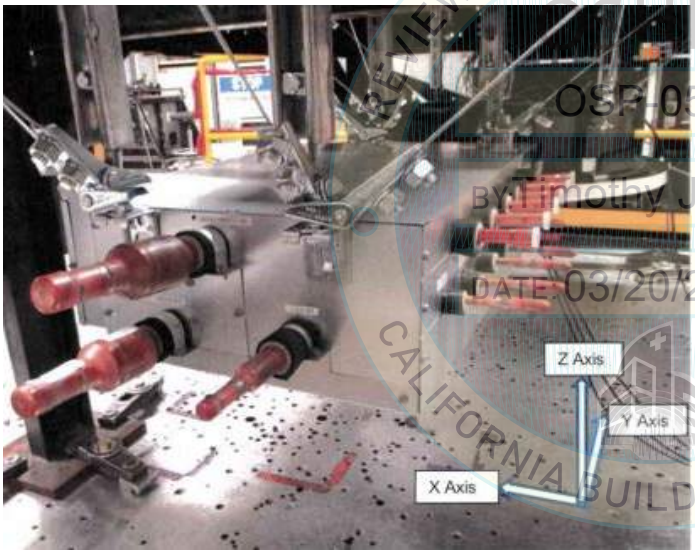


Figure 2j.1: Unit on the shake table

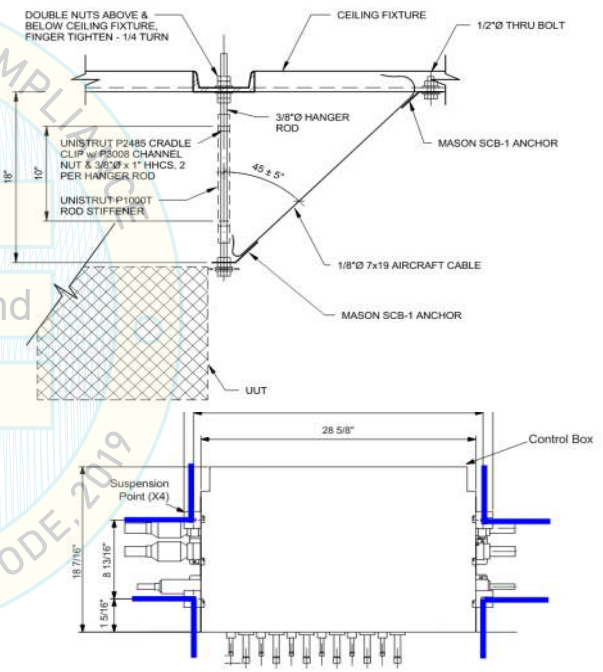


Figure 2j.2: Mounting Detail (Plan and Elevation)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1j Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
SOL V/V	DB62-11038A	SAGINOMIA	SUS
EEV V/V	DB62-04066A	SANHUA	SUS
EEV V/V	DB62-04064A	SANHUA	SUS
GAS V/V	DB33-00069A	SANHUA	SUS
Printed Circuit Board: Main	DB92-02787*	NOVASEZ	ABS Plastic

REVIEWED FOR CODE COMPLIANCE OSHPD OSP-0562 BY: Timothy J Piland DATE: 03/20/2020 CALIFORNIA BUILDING CODE, 2019

UUT-1k Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-26-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM005KNNDCH/AA	5,000	26.5	Suspended	X	Front - Back	n/a	22.6	22.6	9.8
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values.
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 2.95	1.0 0.0	4.96g	3.72g	1.98g	0.80g

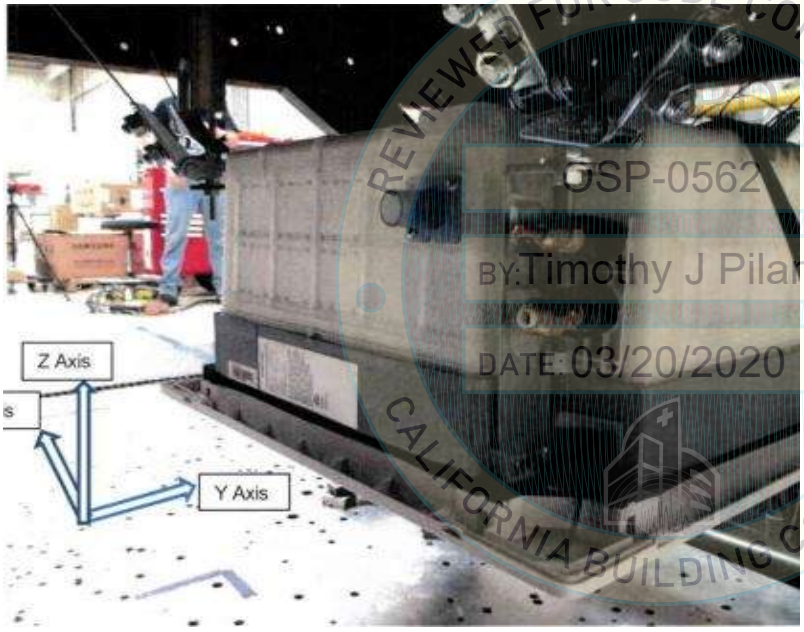


Figure 1k.1: Unit on the shake table

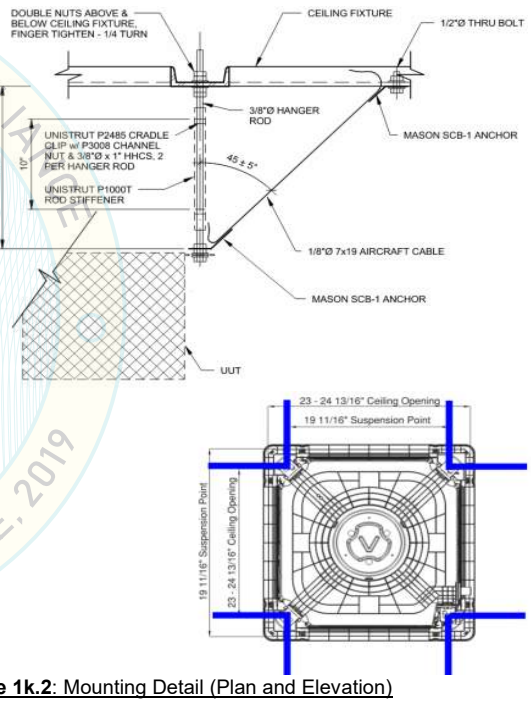


Figure 1k.2: Mounting Detail (Plan and Elevation)

REVIEWED FOR CODE COMPLIANCE
OSP-0562
BY: Timothy J Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1k Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-17305B	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00577*	SSCD	Cu + Al
Printed Circuit Board: Main	DB92-02783*	Samsung	ABS Plastic
Panel	PC4SUSMFN	Samsung	ABS Plastic

UUT-2k Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-27-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AM048FN4DCH/AA	48,000	40.8	Suspended	X	Front - Back	n/a	33.1	33.1	11.3
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details. The length of the mounting rod was extended.
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05 2.95	1.0 0.0	4.88g	3.66g	1.98g	0.80g

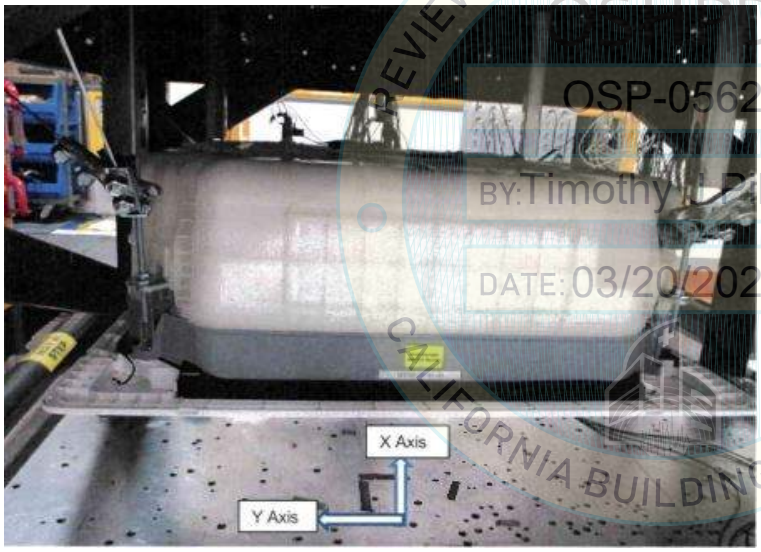


Figure 2k.1: Unit on the shake table

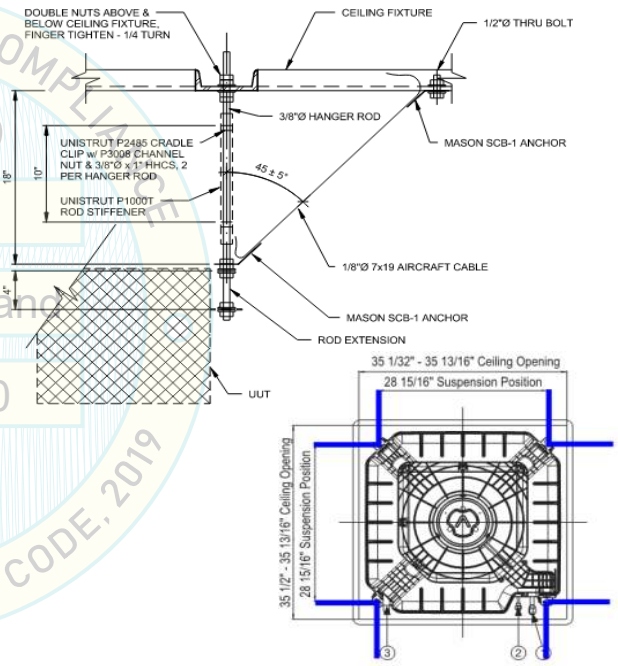


Figure 2k.2: Mounting Detail (Plan and Elevation)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2k Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Heat Exchanger	DB96-13911B	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00578*	SSCD	Cu + Al
Printed Circuit Board: Main	DB92-02783*	Samsung	ABS Plastic
Panel	PC4NUSKFN	Samsung	ABS Plastic

REVIEWED FOR CODE COMPLIANCE OSHPD OSP-0562 BY:Timothy Piland DATE:03/20/2020 CALIFORNIA BUILDING CODE, 2019

UUT-3k Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-28-01-01

Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Length (in)	Width (in)	Height (in)
AM009KN4DCH/AA	9,000	46.3	Suspended	X	Front - Back	n/a	37.3	37.3	11.1
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details length of the mounting rod was extended.
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10 2.95	1.0 0.0	4.96g	3.72g	1.98g	0.80g

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OSP-0562
BY: Timothy J. Piland
DATE: 03/20/2020
CALIFORNIA BUILDING CODE, 2019

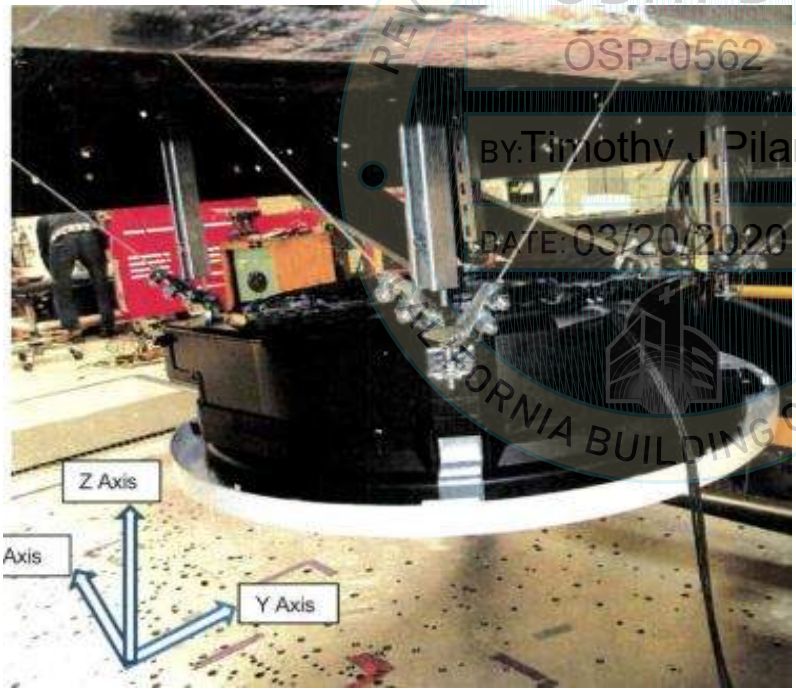


Figure 3k.1: Unit on the shake table

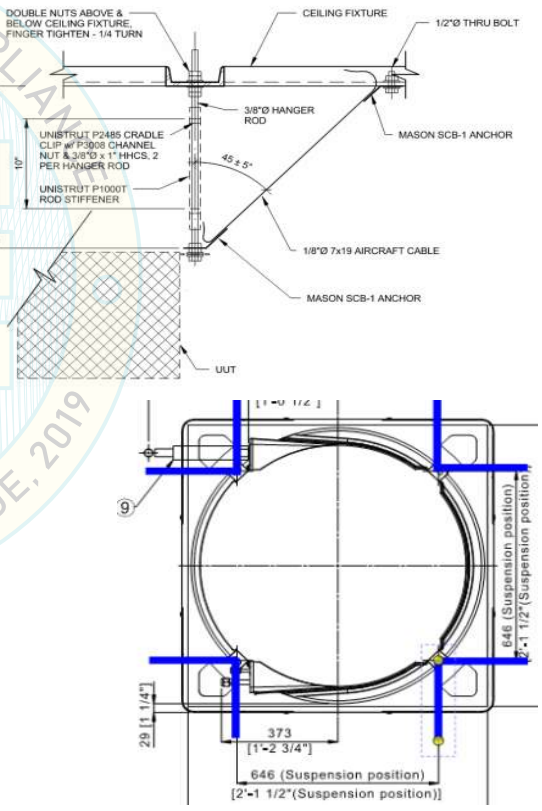


Figure 3k.2: Mounting Detail (Plan and Elevation)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-3k Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Heat Exchanger	DB96-22191A	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00577*	SSCD	Cu + Al
Printed Circuit Board: Main	DB92-04034*	NOVASEZ	ABS Plastic

UUT-4k Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-29-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Length (in)	Width (in)	Height (in)
AM048KN4DCH/AA	48,000	52.9	Suspended	X	Front - Back	n/a	37.3	37.3	14.4
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed with exception of height which was measured at different datum
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Four (4) - 3/8"Ø Hanger rods with rod stiffener and cable bracing per Mounting Details The length of the mounting rod was extended.
Seismic Modifications	Two (2) - Clip-Wire DB65-10036B Nylon x 8" long thethering clips.
Test Anomaly	The grill cap (<2 lbs) fell during testing. Sub-component does not provide structural resistance to unit, two (2) - tethering clips as shown are required.

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05 2.95	1.0 0.0	4.88g	3.66g	1.98g	0.80g

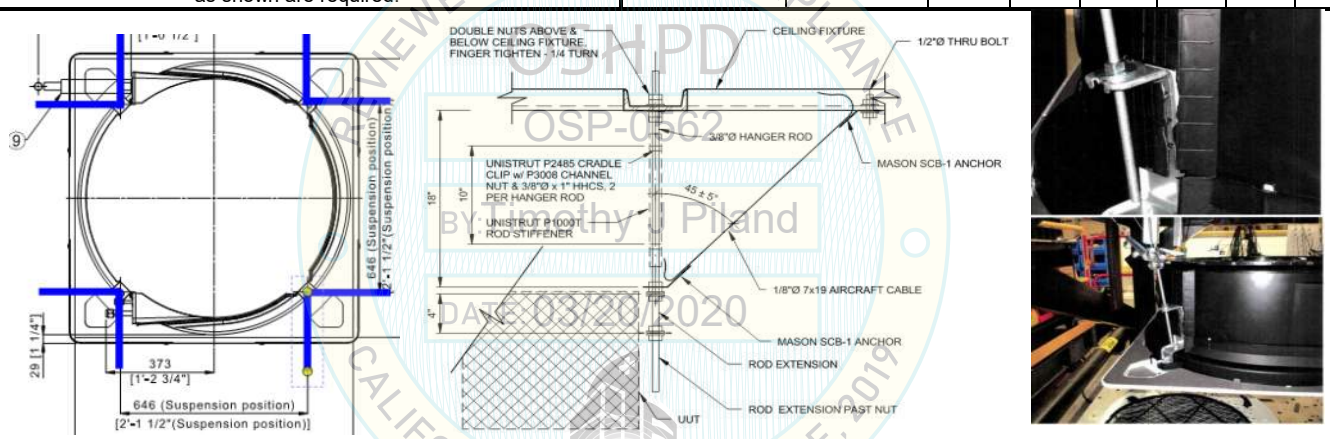


Figure 4k.2: Mounting Detail (Plan, Elevation and Photo)

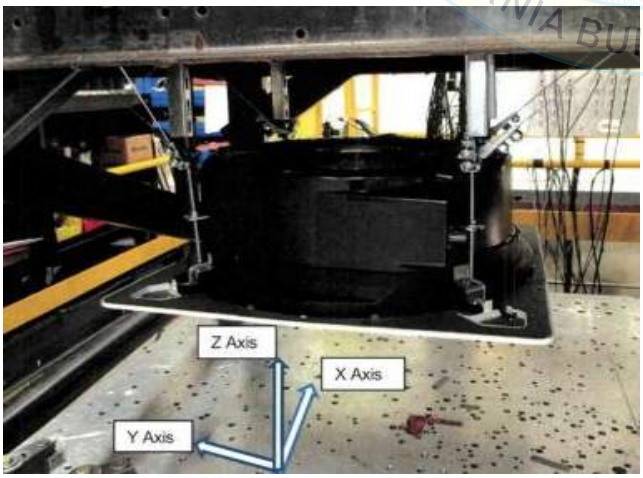
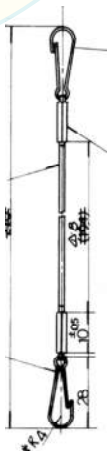


Figure 4k.1: Unit on the shake table



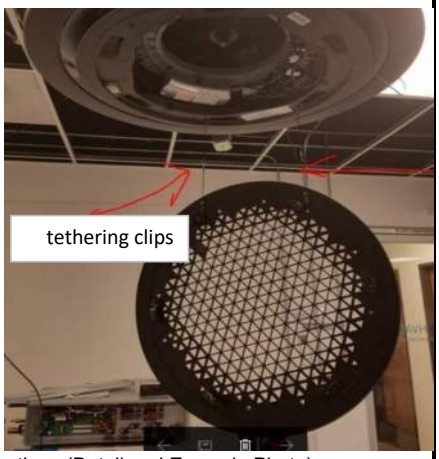


Figure 4k.3: Seismic Modfiications (Detail and Example Photo)

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-4k Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-22190A	Samsung	Al Fin / Cu Tube
Fan Motor	DB31-00578*	SSCD	Cu + Al
Printed Circuit Board: Main	DB92-04034*	NOVASEZ	ABS Plastic

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UUT-1I Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-30-01-01

Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Depth (in)	Width (in)	Height (in)
AM012MNVDCH/AA	12,000	21.6	Wall Mounted	X	Front - Back	n/a	10.3	32.5	10.3
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Five (5) - #14 SMS to backing plate
Seismic Modifications	None
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.10	1.0	4.96g	3.72g	2.08g	0.84g

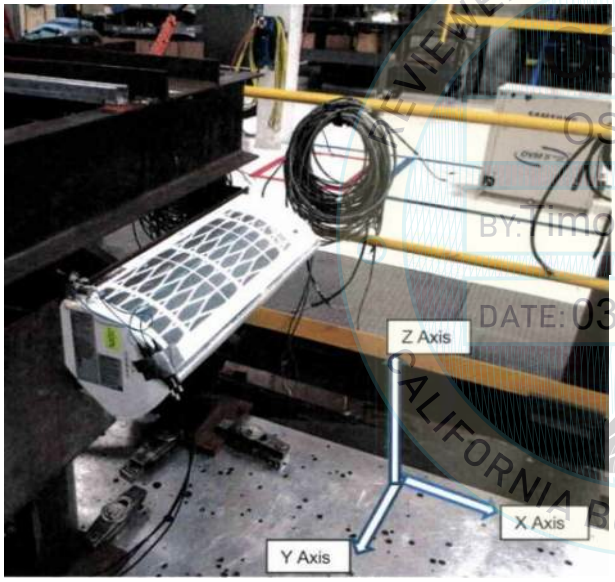


Figure 1I.1: Unit on the shake table

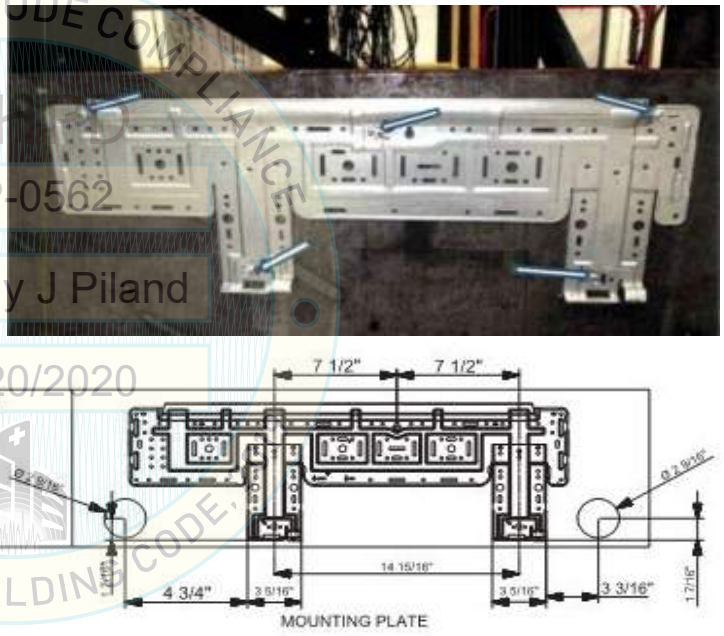


Figure 1I.2: Mounting Details

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Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-1I Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-19013C	FENGRU	Al Fin / Cu Tube
Heat Exchanger	DB96-19012G	FENGRU	Al Fin / Cu Tube
Fan Motor	DB31-00636*	NIDECS	Cu + Al
Printed Circuit Board: Main	DB92-03504*	Samsung	ABS Plastic

UUT-2I Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-31-01-02

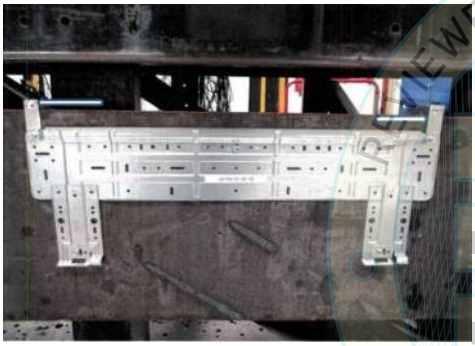
Model Number	*Nomical Capacity (Btu/h)*	Operating Weight (lbs)	*Mounting*	*Excitation Direction*		*Frequency* (Hz)*	Depth (in)	Width (in)	Height (in)
AM028MNVDCH/AA	28,000	32.2	Wall Mounted	X	Front - Back	n/a	11.6	41.9	11.9
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Five (5) - #14 SMS to backing plate
Seismic Modifications	Two (2) - 0.022" thick x 1" wide x 3" long straps were added at the top left and right corners of the UUT. The strap was attached to to backing plate with one (1) - #14 SMS and to top of unit with one (1) - #8 SMS.
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05	1.0	4.88g	3.66g	1.98g	0.80g



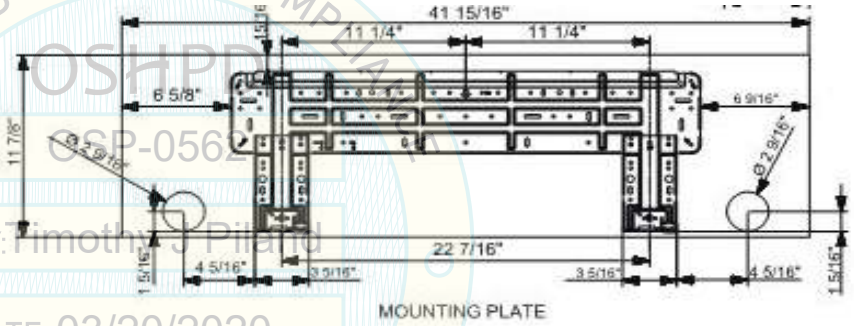


Figure 2I.2: Mounting Details

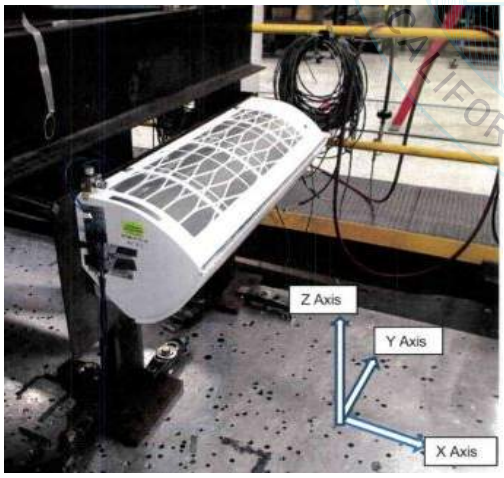


Figure 2I.1: Unit on the shake table



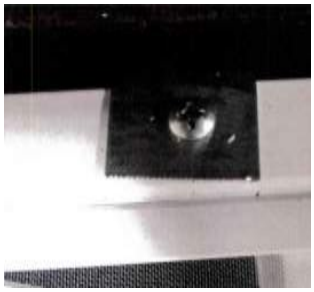


Figure 2I.3: Seismic Modifications

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-2I Summary Tested Sub-Component

Sub-Component	*Part Number*	*Manufacturer*	*Material*
Heat Exchanger	DB96-19003A	YWSZ	Al Fin / Cu Tube
Heat Exchanger	DB96-19002A	YWSZ	Al Fin / Cu Tube
Heat Exchanger	DB96-19001A	YWSZ	Al Fin / Cu Tube
Heat Exchanger	DB96-18994D	YWSZ	Al Fin / Cu Tube
Fan Motor	DB31-00637*	NIDECS	Cu + Al
Printed Circuit Board: Main	DB92-03504*	Samsung	ABS Plastic

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UUT-3I Test Summary

Testing Lab: Curtiss-Wright
Testing Report: Q1750.0
Testing Unit Num: Q1750-32-01-01

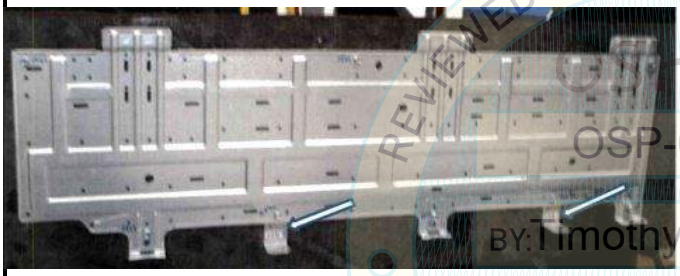
Model Number	Nomical Capacity (Btu/h)	Operating Weight (lbs)	Mounting	Excitation Direction		Frequency* (Hz)	Depth (in)	Width (in)	Height (in)
AM032MNQDCH/AA	31,700	40.8	Wall Mounted	X	Front - Back	n/a	9.9	50.4	13.6
				Y	Side - Side	n/a			
				Z	Vertical	n/a			

Unit dimensions and weight are catalog values, test report values within 5% of listed
* Frequencies are for units prior to ICC ES AC-156 testing.

Attachment Method	Six (6) - #14 SMS to backing plate
Seismic Modifications	Two (2) - 0.022" thick x 1" wide x 3" long brackets were added at the top left and right corners of the UUT. The bracket was attached to backing plate with one (1) - #12 SMS and #8 SMS to unit
Test Anomaly	None

Seismic Parameters

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	AC 156	3.05	1.0	4.88g	3.66g	1.98g	0.8g



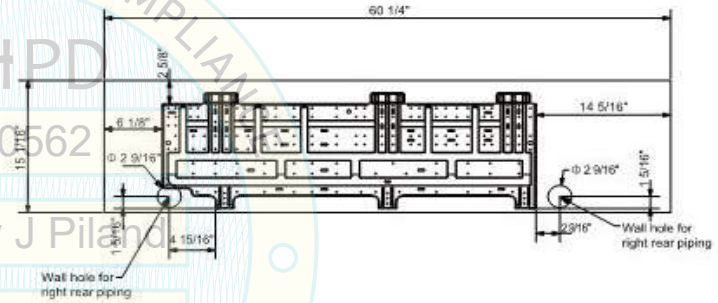


Figure 3I.2: Mounting Details

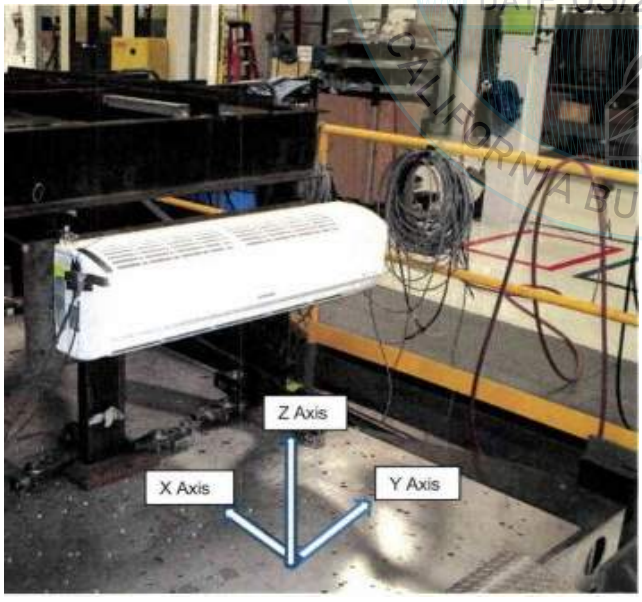
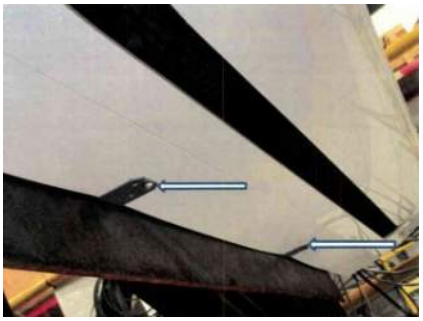


Figure 3I.1: Unit on the shake table



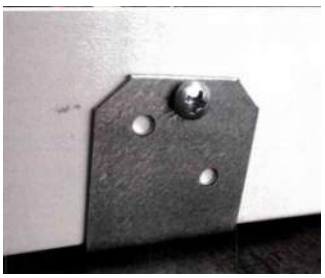


Figure 3I.3: Seismic Modifications

Notes: The UUTs were full of contents during the test.
Unit maintained structural integrity and remained functional per manufacture requirements after shake table test

UUT-3I Summary Tested Sub-Component

Sub-Component	Part Number	Manufacturer	Material
Heat Exchanger	DB96-10764A	CLEANE	Al Fin / Cu Tube
Heat Exchanger	DB96-23472A	CLEANE	Al Fin / Cu Tube
Fan Motor	DB31-00332*	NIDECS	Cu + Al
Printed Circuit Board: Main	DB92-03504*	Samsung	ABS Plastic

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