

SAMSUNG VRF PRODUCT LINES SPECIAL SEISMIC CERTIFICATION

*Buehler Project No. 2017-0271.00
May 7, 2020*

Samsung VRF split system air conditioner product lines (listed in Table 1) are seismically certified in accordance with the 2019 California Building Code (CBC), 2018 International Building Code (IBC) and American Society of Civil Engineers (ASCE) Minimum Design Loads for Buildings and Other Structures, ASCE 7-16. These product lines are also preapproved in accordance with PIN 55: Office of Statewide Health Planning and Development (OSHPD) Special Seismic Certification Preapproval (OSP-0562) dated 03/20/2020.

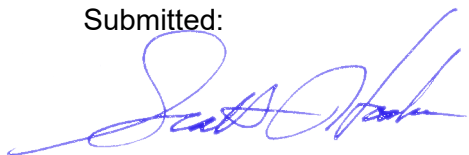
The basis of this seismic certification is through successful tri-axial shake table testing at the Curtiss-Wright QualTech NP testing lab (Report Q1750.0, Q1913.0, and Q1934.0), and analytic evaluation by Buehler Engineering, Inc. The shake table testing and operability tests were conducted in accordance with ICC-ES AC 156 (2018).

Units are qualified for seismic applications when properly installed, used as intended, mounted according to method listed in table 1, and located in the United States where the “design 5 percent damped spectral response acceleration at short periods adjusted for site class effects”, S_{DS} , is less than or equal to values in Table 1. Below grade, at grade, or above grade installations are permitted and included in this certification. This certification may be valid for additional S_{DS} levels where the height factor, z/h , is less than listed. This certification is valid for a component importance factor, I_p , of 1.0 or 1.5.

For anchorage requirements, refer to the manufacturer supplied installation instructions for seismic applications. Anchorage requirement details such as brand, type, embedment, edge spacing, anchor spacing, support structure strength, special inspection, and attachment to building and non-building structures must be outlined and approved by the Structural Engineer of Record (SEOR) for the project or building. Structural floors and housekeeping pads must also be designed to resist seismic forces and approved by SEOR. The installing contractor is responsible for the proper installation of units, observing and complying with the mounting requirements, and any additional requirements outlined by the SEOR.

This certification applies only to the manufacture model numbers noted herein, and further limited to the internal components certified by qualified shake table testing. For additional information, refer to the supplemental analysis report.

Submitted:



Scott R. Hooker
President
For Buehler Engineering, Inc.

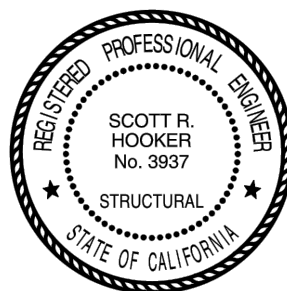




Table 1a. Certified Product List

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

$F_p / W_p = 1.88$

Group A: DVM S Outdoor Unit

Mounting: Rigid Base Mount

Model Number	No modules	Nominal Capacity (Btu/h)	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM072FXVAFH/AA	1	72,000	30.1	34.6	66.7	413.4	
AM072FXVAFH2AA	1	72,000	30.1	34.6	66.7	413.4	
AM072FXVAFR/AA	1	72,000	30.1	34.6	66.7	417.8	
AM072FXVAFR2AA	1	72,000	30.1	34.6	66.7	417.8	
AM072FXVAJH/AA	1	72,000	30.1	34.6	66.7	424.4	
AM072FXVAJH2AA	1	72,000	30.1	34.6	66.7	424.4	
AM072FXVAJR/AA	1	72,000	30.1	34.6	66.7	433.2	
AM072FXVAJR2AA	1	72,000	30.1	34.6	66.7	443.2	
AM096FXVAJH/AA	1	96,000	30.1	51	66.7	540.1	
AM096FXVAJH2AA	1	96,000	30.1	51	66.7	540.1	
AM096FXVAJR/AA	1	96,000	30.1	51	66.7	553.4	
AM096FXVAJR2AA	1	96,000	30.1	51	66.7	553.4	
AM096FXVAFH/AA	1	96,000	30.1	51	66.7	623.9	
AM096FXVAFH2AA	1	96,000	30.1	51	66.7	623.9	
AM096FXVAFR/AA	1	96,000	30.1	51	66.7	637.1	
AM096FXVAFR2AA	1	96,000	30.1	51	66.7	637.1	
AM120FXVAJH/AA	1	120,000	30.1	51	66.7	540.1	
AM120FXVAJH2AA	1	120,000	30.1	51	66.7	540.1	
AM120FXVAJR/AA	1	120,000	30.1	51	66.7	553.4	
AM120FXVAJR2AA	1	120,000	30.1	51	66.7	553.4	
AM120FXVAFH/AA	1	120,000	30.1	51	66.7	623.9	
AM120FXVAFH2AA	1	120,000	30.1	51	66.7	623.9	
AM120FXVAFR/AA	1	120,000	30.1	51	66.7	637.1	
AM120FXVAFR2AA	1	120,000	30.1	51	66.7	637.1	
AM144FXVAFH/AA	1	144,000	30.1	51	66.7	657.0	
AM072KXVTFH/AA	2	144,000	30.1	51	66.7	657.0	
AM144FXVAFH2AA	1	144,000	30.1	51	66.7	657.0	
AM144FXVAFR/AA	1	144,000	30.1	51	66.7	672.4	
AM144FXVAFR2AA	1	144,000	30.1	51	66.7	672.4	
AM072KXVTFR/AA	2	144,000	30.1	51	66.7	672.4	
AM144FXVAJH/AA	1	144,000	30.1	51	66.7	672.4	
AM072KXVTJH/AA	2	144,000	30.1	51	66.7	672.4	
AM144FXVAJH2AA	1	144,000	30.1	51	66.7	672.4	
AM144FXVAJR/AA	1	144,000	30.1	51	66.7	692.3	
AM144FXVAJR2AA	1	144,000	30.1	51	66.7	692.3	
AM072KXVTJR/AA	2	144,000	30.1	51	66.7	692.3	
AM168HXVAFH/AA	1	168,000	30.1	51	66.7	716.5	
AM168HXVAFH2AA	1	168,000	30.1	51	66.7	716.5	
AM168HXVAJH/AA	1	168,000	30.1	51	66.7	719.0	
AM168HXVAJH2AA	1	168,000	30.1	51	66.7	719.0	
AM168HXVAFR/AA	1	168,000	30.1	51	66.7	732.0	
AM168HXVAFR2AA	1	168,000	30.1	51	66.7	732.0	
AM168HXVAJR/AA	1	168,000	30.1	51	66.7	734.5	
AM168HXVAJR2AA	1	168,000	30.1	51	66.7	734.5	
AM192HXVAFH/AA	1	192,000	30.1	51	66.7	734.5	
AM096KXVTFH/AA	2	192,000	30.1	51	66.7	734.5	
AM192HXVAFH2AA	1	192,000	30.1	51	66.7	734.5	
AM192HXVAJH/AA	1	192,000	30.1	51	66.7	736.5	
AM096KXVTJH/AA	2	192,000	30.1	51	66.7	736.5	
AM192HXVAJH2AA	1	192,000	30.1	51	66.7	736.5	
AM192HXVAFR/AA	1	192,000	30.1	51	66.7	750.0	
AM192HXVAFR2AA	1	192,000	30.1	51	66.7	750.0	
AM096KXVTFR/AA	2	192,000	30.1	51	66.7	750.0	
AM096KXVTJR/AA	2	192,000	30.1	51	66.7	752.0	
AM192HXVAJR/AA	1	192,000	30.1	51	66.7	752.0	
AM192HXVAJR2AA	1	192,000	30.1	51	66.7	752.0	

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

Table 1b. Certified Product List

$S_{DS} = 2.30g @ z/h = 1.0$

$S_{DS} = 2.50g @ z/h = 0.0$

$F_p / W_p = 1.73$

Group B: DVM S Water Outdoor Unit

Mounting: Rigid Base Mount




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

Table 1c. Certified Product List


$S_{DS} = 2.30g @ z/h = 1.0$

$S_{DS} = 2.50g @ z/h = 0.0$

$F_p / W_p = 1.73$

Group C: DVM Chiller Outdoor Unit

Mounting: Rigid Base Mount

Model Number	Nominal Capacity (Btu/h)	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AG010KSVAJH/AA*	168,000	30.1	70.7	66.7	959	
AG010KSVAFH/AA	120,000	30.1	70.7	66.7	959	
AG015KSVAJH/AA	168,000	30.1	70.7	66.7	959	
AG015KSVAFH/AA*	168,000	30.1	70.7	66.7	959	

* 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)	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM006JNFDCH/AA	6,000	37.2	8.7	23.6	50.7	
AM006JNGDCH/AA	6,000	46.0	8.7	23.6	57.3	
AM009JNFDCH/AA	9,000	37.2	8.7	23.6	50.7	
AM009JNGDCH/AA	9,000	46.0	8.7	23.6	57.3	
AM012JNFDCH/AA	12,000	37.2	8.7	23.6	50.7	
AM012JNGDCH/AA	12,000	46.0	8.7	23.6	57.3	
AM018JNFDCH/AA	18,000	48.2	8.7	23.6	62.8	
AM018JNGDCH/AA	18,000	57.1	8.7	23.6	69.4	
AM024JNFDCH/AA	24,000	48.2	8.7	23.6	62.8	
AM024JNGDCH/AA	24,000	57.1	8.7	23.6	69.4	

Table 1e. Certified Product List

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

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

$F_p / W_p = 1.88$

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

* Indicates requirement of seismic modification, see UUT sheet

Table 1f. Certified Product List

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

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

$F_p / W_p = 1.88$


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

Table 1g. Certified Product List

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

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

$F_p / W_p = 1.88$


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

Table 1h. Certified Product List

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

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

$F_p / W_p = 1.88$



Model Number	Nominal Capacity (Btu/h)	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	48.8	40.9	18.5	196.2	
AM096FNHDCH/AA	96,000	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	53.1	35.8	17.7	198.4	
AM096JNESCH/AA	96,000	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)	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	33.4	27.6	9.8	69.0	
AM007MNMDCH/AA	7,500	33.4	27.6	9.8	69.0	
AM009MNMDCH/AA	9,500	33.4	27.6	9.8	69.0	
AM012MNMDCH/AA	12,000	33.4	27.6	9.8	69.0	
AM015MNMDCH/AA	15,000	33.4	27.6	9.8	69.0	
AM018MNMDCH/AA	18,000	33.4	27.6	9.8	69.0	
AM018RNMDCH/AA	18,000	47.3	27.6	9.8	73.6	
AM024MNHDCH/AA	24,000	47.3	27.6	9.8	73.6	
AM027MNHDCH/AA	27,000	47.3	27.6	9.8	73.6	
AM030MNHDCH/AA	30,000	47.3	27.6	9.8	73.6	
AM036MNHDCH/AA*	36,000	51.2	27.6	11.8	101.4	
AM048MNHDCH/AA*	48,000	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)	Length (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
MCU-S1NEK1N	54,000	13.2	16.1	7.8	24.3	
MCU-S2NEK2N	96,000	28.7	18.4	7.7	46.3	
MCU-S4NEK3N	192,000	28.7	18.5	7.8	54.1	
MCU-S6NEK2N	192,000	28.7	18.5	7.8	62.8	




Table 1k. Certified Product List

Group K: DVM S Cassette Indoor Unit

Mounting: Suspended

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

$F_p / W_p = 1.88$

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

Group L: DVM S Wall-Mounted Indoor Unit

Mounting: Wall Mounted

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

$F_p / W_p = 1.88$

Model Number	Nominal Capacity (Btu/h)	Depth (in)	Width (in)	Height (in)	Operating Weight (lbs)	Shape
AM005MNV DCH/AA	5,000	9.7	29.5	9.8	17.9	
AM007MNV DCH/AA	7,500	9.7	29.5	9.8	17.9	
AM009MNV DCH/AA	9,500	9.7	29.5	9.8	18.1	
AM012MNV DCH/AA	12,000	10.3	32.5	10.3	21.6	
AM015MNV DCH/AA	15,000	10.3	32.5	10.3	21.6	
AM018MNV DCH/AA*	18,000	11.6	41.9	11.9	32.2	
AM024MNV DCH/AA*	24,000	11.6	41.9	11.9	32.2	
AM028MNV DCH/AA*	28,000	11.6	41.9	11.9	32.2	
AM032MNQDCH/AA*	31,700	9.9	50.4	13.6	40.8	

* Indicates requirement of seismic modification, see UUT sheet