APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0444

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Cummins Power Generation

Manufacturer's Technical Representative: Vyshnav Reveendran

Mailing Address: 1400 73rd AVE NE, Fridley, MN 55432

Telephone: (763) 574-5000 Email: Vyshnav.Raveendran@cummins.com

Product Information

Product Name: QSK95 Diesel Generator Sets

Product Model Number(s): C3000 D6, C3000 D6e, C3250 D6, C3250 D6e, 3500 D6, C3500 D6e, and PCC3300 HMI

Product Category: Emergency and Standby Power Systems

Product Sub-Category: Generators

General Description: Diesel engine powered electrical generator sets, w/ controls, w/ and w/o radiator cooling system.

Mounting Description: Generator floor mounted on external isolators. PCC 3300 HMI is rigidly floor mounted.

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: VMC Group

Contact Person: John Giuliano

Mailing Address: 113 Main St, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: john.giuliano@thevmcgroup.com

Title: President

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

Company Name: THE VMC GROUP

Name: Kenneth Tarlow California License Number: S2851

Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814

Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: U.S. ARMY ENGINEER RESEARCH AND DEVELOPMENT CENTER, CONSTRUCTION ENGINEERING RESEARCH LABORATORY (CERL)

Contact Person: James Wilcoski

Mailing Address: 2902 Newmark Dr., Champaign IL 61822-1076

Telephone: (217) 373-4565 Email: James.wilcoski@usace.army.mil

Company Name: CLARK TESTING LABORATORY, INC.

Contact Person: Devon Lohr

Mailing Address: 1801 Route 51, Jefferson Hills PA 15025

Telephone: (412) 387-1001 Email: dlohr@clarktesting.com

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431

Telephone: (775) 358-5085 Email: Kelly@shaketest.com

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) =	[4.5 (SDS=2.0, z/h=1.0), 1.80 (SDS=2.4, z/h=0)] Spring Isolated [1.5 (SDS=2.0, z/h=1.0), 1.08 (SDS=2.4, z/h=0)] Rigid
S_{DS} (Design spectral response acceleration at short period, g) =	2.00 (z/h=1), 2.40 (z/h=0)
a_p (Amplification factor) =	2.5
R_p (Response modification factor) =	2.0 (Spring Isolated); 6.0 (Rigid)
Ω_0 (System overstrength factor) =	2.0
I_p (Importance factor) =	1.5
z/h (Height ratio factor) =	0 and 1
Natural frequencies (Hz) =	See Attachment
Overall dimensions and weight =	See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 05/05/2032

Date: 5/5/2026

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.0 z/h = 1

Condition of Approval (if applicable):

Table 1 - Certified 60Hz Diesel Generator Set with Radiators

Model[1]	Skid Type	Power Rating [kW]	Max Dimensional Data				Engine	Alternator	Radiator	Controller	z/h = 1 S_{DS}(g)	z/h = 0 S_{DS}(g)	UUT
			Length [in]	Width [in]	Height [in]	Weight [lbs]							
C3000 D6 / C3000 D6e[1]	**P80** / S9	2500 - 3000	311	119	150	67,682	Cummins	Cummins	Young Touchstone / IEA	Cummins	2.00	2.40	UUT-01
	DIG		305	119	150	74,060					2.00	2.40	Interpolated
C3250 D6 / C3250 D6e[1]	P80 / S9	2500 - 3250	322	125	150	70,218					2.00	2.40	Interpolated
	DIG		341	125	150	79,807					2.00	2.40	Interpolated
C3500 D6 / C3500 D6e[1]	P80 / S9	2750 - 3500	322	125	150	70,107					2.00	2.40	Interpolated
	DIG		341	125	150	79,807					2.00	2.40	UUT-02

Table 2 - Certified 60Hz Diesel Generator Set without Radiators

Model[1, 2]	Skid Type	Power Rating [kW]	Max Dimensional Data				Engine	Alternator	Radiator	Controller	z/h = 1 S_{DS}(g)	z/h = 0 S_{DS}(g)	UUT
			Length [in]	Width [in]	Height [in]	Weight [lbs]							
C3000 D6 / C3000 D6e[1]	**P80** / S9	2500 - 3000	239	82	118	56,218	Cummins	Cummins	N/A	Cummins	2.00	2.40	Similar to UUT-01
	DIG		250	99	118	63,544					2.00	2.40	Interpolated
C3250 D6 / C3250 D6e[1]	P80/ S9	2500 - 3250	239	82	118	56,218					2.00	2.40	Interpolated
	DIG		250	99	118	63,544					2.00	2.40	Interpolated
C3500 D6 / C3500 D6e[1]	P80 / S9	2750 - 3500	239	82	118	56,218					2.00	2.40	Interpolated
	DIG		250	99	118	64,816					2.00	2.40	Similar to UUT-02

Table 3 - Certified PCC3300 HMI Pedestal Mounted

Model	Max Dimensional Data				Manufacturer	Material	z/h = 1 S_{DS}(g)	z/h = 0 S_{DS}(g)	UUT
	Length [in]	Width [in]	Height [in]	Weight [lbs]					
PCC3300 HMI (Pedestal Mounted)	20	20	52	64	Cummins	Electrical Components and Carbon Steel Structure	2.00	2.40	UUT-03

Notes

1) The only differences between the "e" and non-"e" models is software.
2) Generator sets listed in Table 2 are identical to those listed in Table 1 except that they lack a radiator.
3) UUT-01 & UUT-02 are floor mounted on spring isolators.

Table 4 - Certified Subcomponents: Engine

Applicable Genset Models	Model Number	Max Weight [lbs]	Manufacturer	Material	Optional Engine Features	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / **C3500 D6** / C3500 D6e	QSK 95	29,321	Cummins	Cast Iron and Carbon Steel	Duplex Fuel Filters Non-Duplex Fuel Filters Cartridge Lube Oil Filter DC Prelube Device Standard Electric Starter Redundant Electric Starter Coalescing Breather	UUT-01, UUT-02

Table 5 - Certified Subcomponents: Alternator

Applicable Genset Models	Model Number	Manufacturer	Material	Max Weight [lbs]	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e	S9M1D-E4 / S9H1D-E4	Cummins	Carbon Steel Laminations and Copper Windings	13,970	Extrapolated
	P80 S			14,065	Extrapolated
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / C3500 D6 / C3500 D6e	P80 T			14,992	Extrapolated
	S9M1D-F4 / S9H1D-F4			15,070	Extrapolated
	S9L1D-E4			16,394	Extrapolated
	S9M1D-G4 / S9H1D-G4			17,086	Extrapolated
	S9L1D-F4			17,346	Extrapolated
	S9M1D-H4 / S9H1D-H4			18,078	Extrapolated
	P80 W			18,950	Extrapolated
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / C3500 D6 / C3500 D6e	P80 X			19,080	UUT-01
N/A	P80 Y			19,150	Interpolated
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / C3500 D6 / C3500 D6e	S9L1D-G4			19,216	Interpolated
C3500 D6 / C3500 D6e	DIG C			20,780	Interpolated
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / C3500 D6 / C3500 D6e	DIG D			21,510	Interpolated
	DIG E			22,330	Interpolated
	DIG F			24,760	Interpolated
C3500 D6 / C3500 D6e	DIG G			26,032	UUT-02

Table 6 - Certified Subcomponents: Radiator

Applicable Genset Models	Part Number	Core Size [ft²]	Max Weight [lbs]	Material	Manufacturer	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / **C3500 D6** / C3500 D6e	A065K762 (YT449289) / A065K763 (YT449461) / A065K764 (YT449785) / A065K765 (YT449782)	84	11,500	Copper Core Carbon Steel Structure	Young Touchstone	Extrapolated
	A049E404 (YT440077)	84	11,500			UUT-01
	A065K759 (YT449340)	94	13,140			Interpolated
	A048D643 (YT440073)	94	13,140			UUT-02
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / C3500 D6 / C3500 D6e	A076E020 (EC061S01)	61	9,375		IEA	Extrapolated
	A076E018 / A078M282 / A078M281 (EC084S01)	84	10,867[2]			UUT-07a, 07b
	A076E017 (EC094S01)	94	11,740[3]			UUT-08a, 08b

1) A078M281 / A078M282 IEA Radiator weight includes isolator weight
2) A076E017 IEA Radiator weight does not include isolator weight
3) IEA Radiators must be installed structurally independent from the rest of the generator set.

Table 7 - Certified Subcomponents: Skid

Applicable Genset Models	Material	Skid Type	Part Number	Manufacturer	Max Weight [lbs]	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / C3500 D6 / C3500 D6e	Structural Carbon Steel	**P80** / S9	A047N790	Cummins	5,100	UUT-01
		DIG	A047Y181		9,000	UUT-02

Table 8 - Certified Subcomponents: Controller

Applicable Genset Models	Material	Model Number	Manufacturer	Max Weight [lbs]	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / **C3500 D6** / C3500 D6e	Electrical Components and Carbon Steel Structure	PCC 3300	Cummins	250	UUT-01, UUT-02
		PCC 3300 HMI ONLY, ON PEDESTAL		65	UUT-03

Table 9 - Certified Subcomponents: Air Cleaner

Applicable Genset Models	Material	Description	Manufacturer	Max Weight [lbs]	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / **C3500 D6** / C3500 D6e	Filter Element, Carbon Steel Tube and Structure	Normal Duty	Cummins	1,000	UUT-01
		Heavy Duty		1,400	UUT-02

Table 10 - Certified Subcomponents: Power Distribution Boxes

Applicable Genset Models	Material	Description	Manufacturer	Max Weight [lbs]	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / **C3500 D6** / C3500 D6e	Electrical Components and Carbon Steel Structure	AC Distribution Box, A055K503	Cummins	26	UUT-05a, UUT-05b[1]
		DC Distribution Box, A062R012		84	UUT-04a,UUT-04b[1]

1) UUT-04 and UUT-05 tested in rigid wall and flexible wall configuration to certify the boxes to be mounted to the side of the genset. Newly tested boxes mount to the same location on the genset as tested in the full genset models UUT-01 and UUT-02.

Table 11 - Certified Subcomponents: Motor Starter

Applicable Genset Models	Material	Model Number	Manufacturer	Max Weight [lbs]	UUT
C3000 D6 / C3000 D6e / C3250 D6 / C3250 D6e / C3500 D6 / C3500 D6e	Carbon Steel and Copper Windings	M128	Prestolite	38	UUT-06a, UUT-06b

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-1

Test Report: VMA-49625-01E; Test lab: CERL; 3/9/15-3/27/15

Model Line	Model Number	Manufacturer
3000-3500 kW QSK95 Gensets	C3000 D6	Cummins Power Generation

Product Construction Summary

Diesel powered electrical generator set 3000 kW. Carbon Steel base frame

Options / Subcomponent Summary

Engine: QSK 95, Cummins, Cast Iron & Carbon Steel; Alternator: P80X, Cummins, Carbon Steel Laminations & Copper Windings; Radiator: A049E404, Young Touchstone, Carbon Core Carbon Steel Structure; Skid: A047N790, Cummins, Structural Carbon Steel; Controller: PCC 3300, Cummins, Electrical Components & Carbon Steel Structure; Air Cleaner: Normal Duty, Cummins, Filter Element, Carbon Steel Tube and Structure

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
67,682	311.00	119.00	150.00	3.3	3.2	6.7

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

Unit is mounted to test fixture using (18) VMC M2SSHX-1E spring isolators. Isolators are welded to the fixture.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-2

Test Report: VMA-49625-01E; Test lab: CERL; 3/9/15-3/27/15

Model Line	Model Number	Manufacturer
3000-3500 kW QSK95 Gensets	C3500 D6	Cummins Power Generation

Product Construction Summary

Diesel powered electrical generator set 3500 kW. Carbon Steel base frame

Options / Subcomponent Summary

Engine: QSK 95, Cummins, Cast Iron & Carbon Steel; Alternator: DIG G, Cummins, Carbon Steel Laminations and Copper Windings; Radiator: A048D643, Young Touchstone, Copper Core Carbon Steel Structure; Skid: A047Y181, Cummins, Structural Carbon Steel; Controller: PCC 3300, Cummins, Electrical Components and Carbon Steel Structure; Air Cleaner: Heavy Duty, Cummins, Filter Element, Carbon Steel Tube and Structure

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
79,807	341.00	125.00	150.00	3.3	3.2	6.6

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

Unit is mounted to test fixture using (20) Caldyn RJEHD spring isolators. Isolators are welded to the fixture.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-3

Test Report: VMA-49625-01E; Test lab: CERL; 3/9/15-3/27/15

Model Line	Model Number	Manufacturer
HMI only on pedestal	PCC 3300 HMI	Cummins Power Generation

Product Construction Summary

ASTM A36 mild steel pedestal base, ASTM B221 6063 T-52 Aluminum pedestal upright, ASTM A569 mild steel HMI wrapper

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
66	20.00	20.00	52.00	7.3	4.3	> 33.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

Unit is mounted to test fixture using (4) M12 Grade 8 Bolts.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-4a

Test Report: 31632-2101; Test Lab: DCL; Test Dates: 6/8/21; Test Facility Number: UUT-1a

Model Line	Model Number	Manufacturer
DC Distribution Box for QSK95 Gensets	A062R012	Cummins Power Generation

Product Construction Summary

Carbon Steel Enclosure and Mounting Brackets

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
84	8.25	21.50	34.25	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

Unit is mounted to test fixture using manufacturer provided mounting brackets (PN# A043D580). Mounting brackets were fastened to the unit, via (8) anti-vibration mounts (PN# A045Y867), M8 bolts, and round washers. Unit was mounted to the wall fixture using (8) 3/8" Grade 5 bolts and (8) manufacturer provided bushings (PN# A052N277). Wall fixture attached directly to shake table.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-4b

Test Report: 31632-2101; Test Lab: DCL; Test Dates: 6/8/21; Test Facility Number: UUT-1b

Model Line	Model Number	Manufacturer
DC Distribution Box for QSK95 Gensets	A062R012	Cummins Power Generation

Product Construction Summary

Carbon Steel Enclosure and Mounting Brackets

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
84	8.25	21.50	34.25	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

Unit is mounted to test fixture using manufacturer provided mounting brackets (PN# A043D580). Mounting brackets were fastened to the unit, via (8) anti-vibration mounts (PN# A045Y867), M8 bolts, and round washers. Unit was mounted to the wall fixture using (8) 3/8" Grade 5 bolts and (8) manufacturer provided bushings (PN# A052N277). Wall fixture attached to shake table using (4) VMC Group MSSH-1E-530N external spring isolators.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-5a

Test Report: 31632-2101; Test Lab: DCL; Test Dates: 6/8/21; Test Facility Number: UUT-2a

Model Line	Model Number	Manufacturer
AC Distribution Box for QSK95 Gensets	A055K503	Cummins Power Generation

Product Construction Summary

Carbon Steel Enclosure and Mounting Brackets

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
26	5.75	10.50	21.25	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

Unit is mounted to test fixture using manufacturer provided mounting brackets (PN# A052V294 [top] and A053M862 [bottom]). Mounting brackets were fastened to the unit, via (4) anti-vibration mounts (PN# A043E678), M6 bolts, and round washers. Unit was mounted to the wall fixture using (7) 3/8" Grade 5 bolts and (7) manufacturer provided bushings (PN# A043U714). Wall fixture attached directly to shake table.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-5b

Test Report: 31632-2101; Test Lab: DCL; Test Dates: 6/8/21; Test Facility Number: UUT-2b

Model Line	Model Number	Manufacturer
AC Distribution Box for QSK95 Gensets	A055K503	Cummins Power Generation

Product Construction Summary

Carbon Steel Enclosure and Mounting Brackets

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
26	5.75	10.50	21.25	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

Unit is mounted to test fixture using manufacturer provided mounting brackets (PN# A052V294 [top] and A053M862 [bottom]). Mounting brackets were fastened to the unit, via (4) anti-vibration mounts (PN# A043E678), M6 bolts, and round washers. Unit was mounted to the wall fixture using (7) 3/8" Grade 5 bolts and (7) manufacturer provided bushings (PN# A043U714). Wall fixture attached to shake table using (4) VMC Group MSSH-1E-530N external spring isolators.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-6a

Test Report: 19534-2201; Test Lab: DCL: Test Dates: 8/9/22; Test Facility Number: UUT-4a, 5a

Model Line	Model Number	Manufacturer
Motor Starter for QSK95 Gensets	M128	Prestolite

Product Construction Summary

Carbon Steel

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
38	5.00	5.50	15.50	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.60	0.64

Test Mounting Details

Unit is mounted to a 1/4" thick steel mounting plate on the wall fixture with (3) 1/2" Grade 5 bolts. The wall fixture attached to the shake table with (12) Grade 5 M12 threaded rods.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-6b

Test Report: 19534-2201; Test Lab: DCL: Test Dates: 8/9/22; Test Facility Number: UUT-4b, 5b

Model Line	Model Number	Manufacturer
Motor Starter for QSK95 Gensets	M128	Prestolite

Product Construction Summary

Carbon Steel

Options / Subcomponent Summary

N/A

UUT Properties

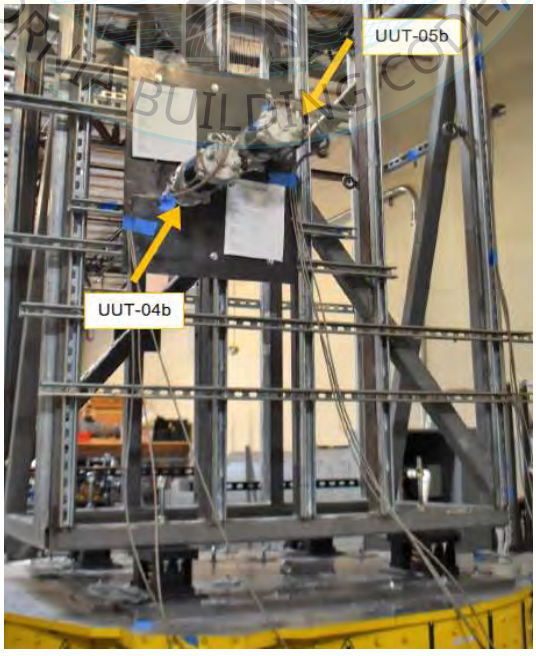
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
38	5.00	5.50	15.50	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.60	0.64

Test Mounting Details

Unit is mounted to a 1/4" thick steel mounting plate on the wall fixture with (3) 1/2" Grade 5 bolts. The wall fixture attached to (4) VMC M2SSH-1E-530N isolators using (4) 3/4" Grade 5 threaded rods. The isolator base plate attached to the shake table with (16) Grade 5 M12 threaded rods.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-7a

Test Report: JID 24-01395-R; Test Lab: Clark; Test Dates: 10/29/24-10/30/24; Test Facility Number: UUT-8a

Model Line	Model Number	Manufacturer
Radiator for QSK95 Genset	A076E018	IEA

Product Construction Summary

Copper core, carbon steel structure

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
10,867	100.00	125.00	146.00	3.4	4.0	19.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

UUT-7a was rigidly mounted by locking (6) VMC Group M2SSHX-1E-5150N spring isolators. The isolators were connected to the equipment using (1) 3/4" Grade 8 bolt each, and were connected to the shake table using 3/8" fillet welds on all four sides.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-7b

Test Report: JID 24-01395-R; Test Lab: Clark; Test Dates: 10/29/24-10/30/24; Test Facility Number: UUT-8a

Model Line	Model Number	Manufacturer
Radiator for QSK95 Genset	A076E018	IEA

Product Construction Summary

Copper core, carbon steel structure

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
10,867	100.00	125.00	146.00	3.1	3.6	11.3

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

UUT-7b was isolated using (6) VMC Group M2SSHX-1E-5150N spring isolators. The isolators were connected to the equipment using (1) 3/4" Grade 8 bolt each, and were connected to the shake table using 3/8" fillet welds on all four sides.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-8a

Test Report: JID 25-00209-TR; Test Lab: Clark; Test Dates: 10/7/25-10/8/25; Test Facility Number: EUT-11A

Model Line	Model Number	Manufacturer
Radiator for QSK95 Genset	A076E017	IEA

Product Construction Summary

Copper core, carbon steel structure

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
11,740	125.00	102.00	149.00	3.4	4.1	16.4

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

UUT-7b was isolated using (6) VMC Group M2SSHX-1E-5150N spring isolators. The isolators were connected to the equipment using (1) 3/4" Grade 8 bolt each, and were connected to the shake table using (4) 7/8" diameter Grade 8 bolts per isolator.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-8b

Test Report: JID 25-00209-TR; Test Lab: Clark; Test Dates: 10/7/25-10/8/25; Test Facility Number: EUT-11B

Model Line	Model Number	Manufacturer
Radiator for QSK95 Genset	A076E017	IEA

Product Construction Summary

Copper core, carbon steel structure

Options / Subcomponent Summary

N/A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
11,740	125.00	102.00	149.00	2.7	2.8	7.4

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
		2.40	0.0	1.5	-	-	1.61	0.65

Test Mounting Details

UUT-7b was isolated using (6) VMC Group M2SSHX-1E-5150N spring isolators. The isolators were connected to the equipment using (1) 3/4" Grade 8 bolt each, and were connected to the shake table using (4) 7/8" diameter Grade 8 bolts per isolator.

All units were filled with contents and maintained structural integrity and functionality after AC-156 test.