



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT**

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

OFFICE USE ONLY

APPLICATION #: OSP-0446

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Cummins Power Generation

Manufacturer's Technical Representative: Abhishek Patil

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

Telephone: (763) 574-5000 Email: abhishek.patil@cummins.com

Product Information

Product Name: Simplisync Digital Master Controller

Product Model Number(s): DMC2000, DMC6000, DMC8000

Product Category: Switchgear/Switchboards

Product Sub-Category: Paralleling Switchgear Controls

General Description: Enclosed programmable logic controller for monitoring and controlling generator set paralleling.

Mounting Description: Base Mounted Rigid -

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: The VMC Group

Contact Person: John Giuliano

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

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

Title: President

"A healthier California where all receive equitable, affordable, and quality health care"

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





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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): _____

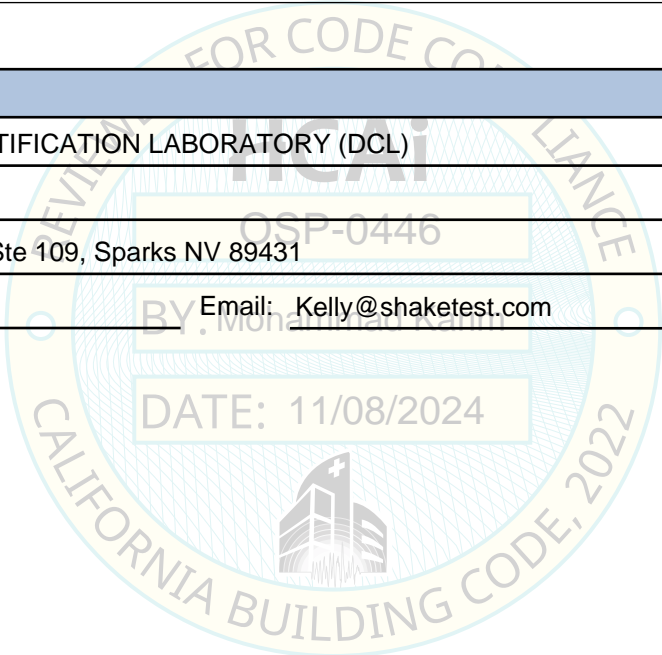
Testing Laboratory

Company Name: 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





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.44 (SDS=2.00, z/h=1), 1.13 (SDS=2.50, z/h=0)

SDS (Design spectral response acceleration at short period, g) = 2.00 (z/h=1), 2.50 (z/h=0)

a_p (Amplification factor) = 1.0 rigid mounted

R_p (Response modification factor) = 2.5 rigid mounted

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 11/08/2030

Date: 11/8/2024

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.0 z/h = 1

Condition of Approval (if applicable): DATE: 11/08/2024

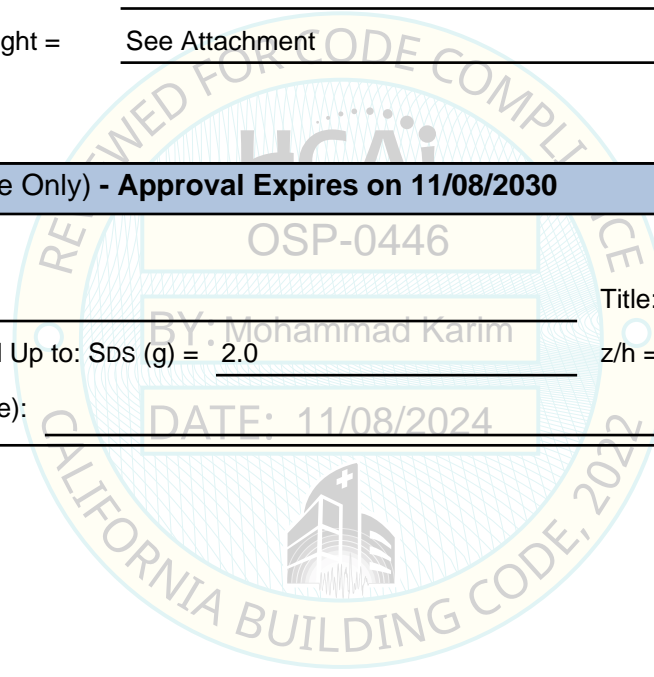


Table 1 - Certified Product Table

Model	Manufacturer	Dimensions [in]			Max. Weight [lb]	S _{DS} @ z/h=0	S _{DS} @ z/h=1	UUT
		Height	Depth	Width				
DMC 2000	Cummins	91	32	32	680	2.5	2.0	UUT-03
DMC 6000		90	31	31	710	2.5	2.0	UUT-1
DMC 6000, DMC 8000		90	31	31	710	2.5	2.0	Interpolated
DMC 8000		90	31	32	710	2.5	2.0	UUT-2
DMC 8000		91	32	32	790	2.5	2.0	UUT-4

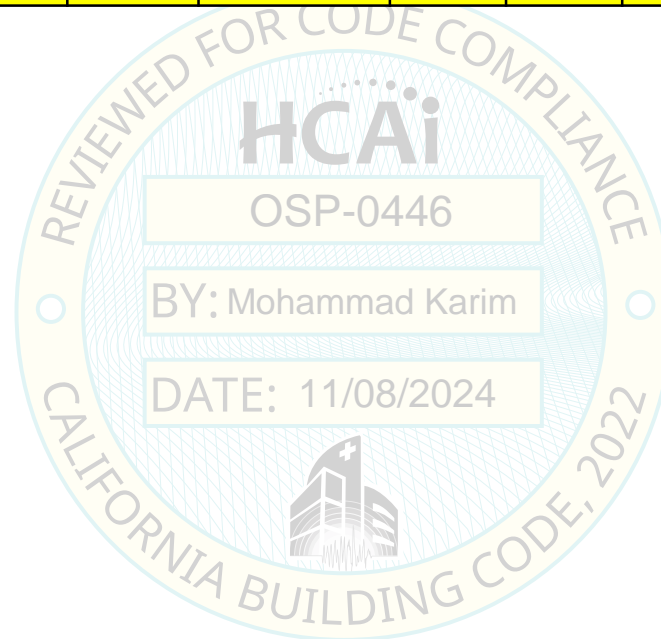


Table 2 - Human Machine Interface

Model	Description	Specifications	MFR	CPG P/N	Weight [lb]	UUT
DMC2000	Screen, Touch	Screen - 7", 24VDC, 1 Serial, 2 USB	Advantech	A068F070	1.21	Extrapolated
		Screen - 7", 24VDC, 1 Serial, 2 USB		A058X442	1.32	UUT-3
DMC6000	Screen, Touch	Screen -19", 24VDC, 1 VGA, 1 Serial, 2 USB		A049K341	9.7	UUT-1
		Screen -15", 24VDC, 1 VGA, 1 Serial, 2 USB		A063N360	22	Interpolated
		Screen -15", 24VDC, 1 VGA, 1 Serial, 2 USB		A074E864	18.7	Interpolated
DMC8000	Screen, Touch	Screen - 24", 24VDC, 1 VGA, 1 Serial, 2 USB		A074E609	27	UUT-4
		Screen - 21", 24VDC, 1 VAG, 1 Serial, 2 USB		A072E706	22	Interpolated
		Screen - 19", 24VDC, 1 VGA, 1 Serial, 2 USB		A049K341	22	UUT-2

Table 3 - Controller

Model	Description	Specifications	MFR	CPG P/N	Weight [lb]	UUT
DMC2000	MCM3320	Full Featured Control	Cummins	0327-1520-01	4.5	UUT-3
	Microprocessor,Integrated	Momentum Processor	Schneider	A052P414	0.36	UUT-3
	Relay,Base	IO Base, 16 Inputs 16 Outputs	Electric	0326-0203-02	0.44	UUT-3
	Control Kit	System I/O Device Aux 101 & 102 Kit	Cummins	0541-1342	4.5	UUT-3
DMC 6000 DMC8000	MCM3320	Full Featured Control	Cummins	0327-1520-01	4.5	UUT-1, UUT-2, UUT-4
	Standard CPU Modicon	Modicon M340 Processor	Schneider Electric	A047S936	0.44	UUT-4
	4 Slot Backplane	Modicon X80 4 slot rack		A041G918	1.38	UUT-4
	Power Distribution Module	Modicon STB Power Distribution Module		A041G880	0.28	UUT-4
	Ethernet Network Module	Modicon M340 4 Port Network Module		A041G849	0.44	UUT-4
	Network Interface Module	Modicon STB Network Module		A041G876	0.32	UUT-4
	Discrete DC Input	Modicon M340 16 Point Input Module		A049K352	0.25	UUT-4
	Discrete DC Input	Modicon STB 16 Point Input Module		A047S758	0.19	UUT-4
	Discrete Relay Output	Modicon M340 16 Point Output Module		A058A215	0.33	UUT-4
Discrete DC Output	Modicon STB 16 Point Output Module	A047S753		0.19	UUT-4	

Table 4 - Power Supply

Model	Description	Specifications	MFR	CPG P/N	Weight [lb]	UUT
DMC2000	Batteries	Battery, UPS-BAT/7.2Ah	Phoenix Contact	A043K841	15	Extrapolated
	UPS	Uninterruptible Power Supply, QUINT-UPS		A043H869	1.1	
	Power Supply	Power Supply, QUINT-PS		A028Z053	2.4	
DMC2000	Power Supply/UPS	Power Supply, UNO DC-UPS		A058X103	2.2	UUT-3
DMC6000 DMC8000	Batteries	Battery, UPS-BAT/7.2Ah		A043K841	15	UUT-1, UUT-2, UUT-4
	UPS	Uninterruptible Power Supply, QUINT-UPS		A043H869	1.1	
	Power Supply	Power Supply, QUINT-PS		A028Z053	2.4	
	UPS	Uninterruptible Power Supply, QUINT-UPS 20A		A043H876	1.32	Extrapolated
	Power Supply Module	Power Supply, Modicon X80 Rack		Schneider Electric	A064Z577	0.74

Table 5 - Relay & Contractor

Model	Description	Specifications	MFR	CPG P/N	Weight [lb]	UUT
DMC2000	Contacteur Style Relay	4 NO, 1 NC (3.03"H x 1.77"W x 3.76"D)	Telemecanique	0307-2900-05	0.91	UUT-1
	Terminal Style Control Relay	1 FORM C	Phoenix Contact	A029A411	0.16	UUT-3
DMC6000	Contacteur Style Relay	4 N/O, 0 N/C	Allen Bradley	A041E508	0.91	UUT-1, UUT-2,
DMC8000	Terminal Style Control Relay	1 FORM C	Phoenix Contact	A029A411	0.16	UUT-4

Telemecanique Contacteur Style Relay was added to UUT-1

Table 6 - Circuit Breaker

Model	Description	Specifications	MFR	CPG P/N	Weight [lb]	UUT
DMC2000 DMC 6000 DMC8000	Breaker, Miniature	2P C 20A, 240VAC, 125VDC	Schneider Electric	A034H154	0.3	UUT-1, UUT-2, UUT-3, UUT-4
		1P C 10A, 240VAC, 125VDC		A034H170	0.3	

Table 7a - Enclosure

Model	Description	Specifications	MFR	CPG P/N	Weight [lb]	UUT
DMC2000	Enclosure	Single Frame	Hoffman	A049V849	348	Extrapolated
	Enclosure	Single Frame	Hoffman	A075J831	350	UUT-3
DMC6000	Enclosure	Single Frame	Hoffman	A063Z937	363	UUT-1
	Enclosure	Single Frame	Hoffman	A075J842	370	Interpolated
DMC8000	Enclosure	Single Frame	Hoffman	A048S311	363	UUT-2
	Enclosure	Single Frame	Hoffman	A075J865	370	UUT-4

Table 7b - Enclosure Paneling Thickness

Model	Enclosure Part Number	Panel Section	Material/Thickness	UUT
DMC2000, DMC6000, DMC8000	A049V849, A063Z937, A048S311	Frame	Galvanized Steel / 12 ga	UUT-1, UUT-2
		External Top and Side Covers	Galvanized Steel / 16 ga	
		External Door/Rear Covers	Galvanized Steel / 14 ga	
		Internal Panels	Galvanized Steel / 12 ga	
	A075J831, A075J842, A075J865	Frame	Galvanized Steel / 16 ga	UUT-3, UUT-4
		External Top, Side and Rear Covers	Galvanized Steel / 16 ga	
		External Door Covers	Galvanized Steel / 14 ga	
		Internal Panels	Galvanized Steel / 11 ga	

Table 8 - Other Parts

Model	Description	Specifications	MFR	CPG P/N	Weight [lb]	UUT
DMC2000	Switch, Automatic Manual	2 POS Maint, 10 C Form Conacts (2.13"H x 2.13"W x 4.63"D)	Electroswitch	A034L730	0.5	UUT-1
DMC2000 DMC 6000 DMC8000	Dual Rectifier	1200V	IXYS	A047C626	0.1	UUT-1, UUT-2, UUT-3, UUT-4

Electroswitch Automatic Manual Switch was added to UUT-1



UNIT UNDER TEST (UUT) Summary Sheet

UUT-1

DCL Test Report #: 13677-2001

Model Line	Model Number	Manufacturer
Digital Master Controller	DMC 6000	Cummins

Product Construction Summary

Carbon Steel Base Frame, Carbon Steel Enclosure Frame: 12GA Steel, External Top/side covers: 16GA Steel, External Door/Rear covers: 14GA Steel, Interior panels: 12 GA Galvanized Steel

Options / Subcomponent Summary

Advantech Touchscreen, Cummins Controller, Phoenix Contact Power Supply, Allen Bradley Contactor Style Relay, Phoenix Contact Terminal Style Control Relay, Schneider Electric Circuit Breaker, Hofman Enclosure, IXYS Dual Rectifier, Telemecanique Relay, Electroswitch Switch

UUT Properties

Weight [lb]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
710	31	31	90	7	5.5	32.5

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	2.0	1.00	1.5	3.20	2.40	-	-
		2.5	0.00	1.5	-	-	1.68	0.68

Test Mounting Details

UUT rigidly attached to shake table using (4) Grade 5, 3/4" Dia. bolts, round washers, triangular plate washers (supplied by manufact



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



UNIT UNDER TEST (UUT) Summary Sheet

UUT-1

DCL Test Report #: 13677-2001

Model Line	Model Number	Manufacturer
Digital Master Controller	DMC 6000	Cummins

Product Construction Summary

Carbon Steel Base Frame, Carbon Steel Enclosure Frame: 12GA Steel, External Top/side covers: 16GA Steel, External Door/Rear covers: 14GA Steel, Interior panels: 12 GA Galvanized Steel

Design Changes on Unit

Top and Bottom two side panel mounting bolts - M5-0.8 x 12 mm Class 8.8 Bolts and M5-0.8 nuts.
Two side panel mounting bolts that support center of side panels - M5-0.8 x 12 mm Class 8.8 Bolts, round washers, M5-0.8 nuts and collar. Refer to pictures shown below.

UUT Properties

Weight [lb]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
710	31	31	90	7	5.5	32.5

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	2.0	1.00	1.5	3.20	2.40
		2.5	0.00	1.5	-	-	1.68	0.68

Test Mounting Details



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



UNIT UNDER TEST (UUT) Summary Sheet

UUT-2

DCL Test Report #: 99414-1501

Model Line	Model Number	Manufacturer
Digital Master Controller	DMC 8000	Cummins

Product Construction Summary

Carbon Steel Base Frame, Carbon Steel Enclosure, Frame: 12GA Steel, External Top/side covers: 16GA Steel, External Door/Rear covers: 14GA Steel, Interior panels: 12 GA Galvanized Steel

Options / Subcomponent Summary

Advantech Touchscreen, Cummins Controller, Phoenix Contact Power Supply, Allen Bradley Contactor Style Relay, Phoenix Contact Terminal Style Control Relay, Schneider Electric Circuit Breaker, Hofman Enclosure, IXYS Dual Rectifier

UUT Properties

Weight [lb]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
710	31	32	90	7	6.3	16.3

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	2.0	1.00	1.5	3.20	2.40	-	-
		2.5	0.00	1.5	-	-	1.68	0.68

Test Mounting Details

UUT rigidly attached to shake table using (4) Grade 5, 5/8" Dia. bolts. round washers, triangular plate washers (supplied by manufacturer)



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



UNIT UNDER TEST (UUT) Summary Sheet

UUT-3

DCL Test Report #: 23115-2301

Model Line	Model Number	Manufacturer
Digital Master Controller	DMC 2000	Cummins

Product Construction Summary

Carbon Steel Base Frame, Carbon Steel Enclosure, Frame: 16GA Steel, External Top/Side/Rear covers: 16GA Steel, External Door covers: 14GA Steel, Interior panels: 11 GA Galvanized Steel

Options / Subcomponent Summary

Advantech Touchscreen, Cummins Controller, Phoenix Contact Power Supply, Phoenix Contact Terminal Style Control Relay, Schneider Electric Circuit Breaker, Hofman Enclosure, IXYS Dual Rectifier

Design Changes on Unit

Added (2) 0.1" thick brackets to the enclosure door at the top and bottom corners using (4) M5 screws per bracket. Each bracket had (1) 5/16" Gr. 8 bolt which fit into a hole drilled into the existing manufacturer provided cabinet bracket.

UUT Properties

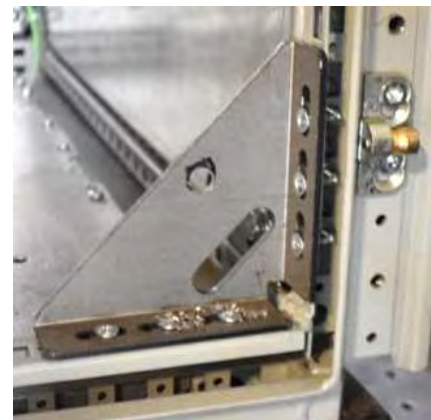
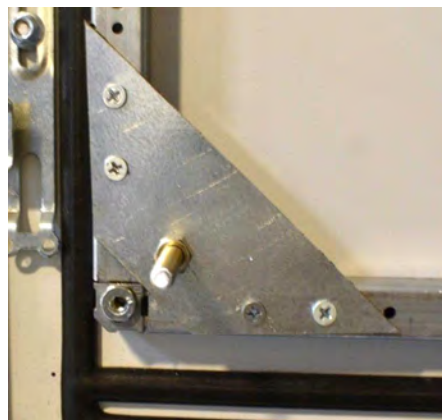
Weight [lb]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
680	31.9	31.5	90.5	6.0	7.0	19.5

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	2.0	1.00	1.5	3.20	2.40	-	-
		2.5	0.00	1.5	-	-	1.67	0.67

Test Mounting Details

UUT rigidly attached to shake table using (4) Grade 5, 3/8" Dia. Bolts, flat washers, manufacturer provided 0.2" thick triangular plate washers. [Pictures from left to right; UUT, added bracket, cabinet bracket]



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



UNIT UNDER TEST (UUT) Summary Sheet

UUT-4

DCL Test Report #: 23115-2301

Model Line	Model Number	Manufacturer
Digital Master Controller	DMC 8000	Cummins

Product Construction Summary

Carbon Steel Base Frame, Carbon Steel Enclosure, Frame: 16GA Steel, External Top/Side/Rear covers: 16GA Steel, External Door covers: 14GA Steel, Interior panels: 11 GA Galvanized Steel

Options / Subcomponent Summary

Advantech Touchscreen, Cummins Controller, Phoenix Contact Power Supply, Phoenix Contact Terminal Style Control Relay, Schneider Electric Circuit Breaker, Hofman Enclosure, IXYS Dual Rectifier, Allen Bradley Contactor Style Relay

Design Changes on Unit

Added (2) 0.1" thick brackets to the enclosure door at the top and bottom corners using (4) M5 screws per bracket. Each bracket had (1) 5/16" Gr. 8 bolt which fit into a hole drilled into the existing manufacturer provided cabinet bracket.

UUT Properties

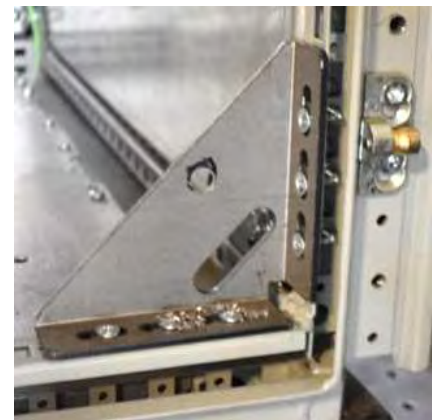
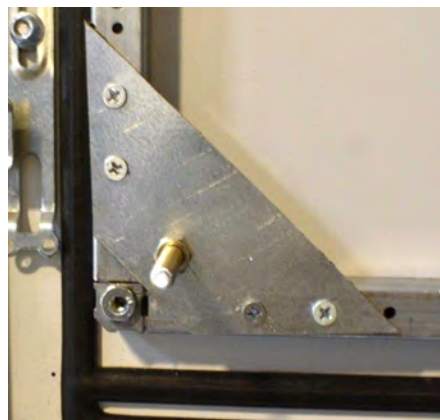
Weight [lb]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
790	31.9	31.5	90.5	5.5	7.5	21.0

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	2.0	1.00	1.5	3.20	2.40	-	-
		2.5	0.00	1.5	-	-	1.67	0.67

Test Mounting Details

UUT rigidly attached to shake table using (4) Grade 5, 3/8" Dia. Bolts, flat washers, manufacturer provided 0.2" thick triangular plate washers. [Pictures from left to right; UUT, added bracket, cabinet bracket]



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