



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

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0074 – 10**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Siemens

Manufacturer's Technical Representative: Reid Barkley

Mailing Address: 1500 Harvester Road, West Chicago, IL 60185

Telephone: (630) 562-5633 Email: Reid.barkley@siemens.com

Product Information

Product Name: Tiastar Motor Control Center

Product Type: Low Voltage Motor Control Center - MCC

Product Model Number: See Attached.

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

General Description: MCC's are used to control various types of electrical motors for industrial applications. The units are constructed of carbon steel enclosures (NEMA 1, 1A, and 2) and contain a wide variety of electrical components including main lugs, main breakers, main disconnect switches, starters, softstarters, feeder circuit breakers, feeder disconnect switches, distribution transformers, panel boards, HMI panels, and motor drives.

Mounting Description: Rigid floor mounted.

Applicant Information

Applicant Company Name: W.E. Gundy & Associates, Inc.

Contact Person: Travis Soppe, SE

Mailing Address: 250 Bobwhite Ct. Suite 100, Boise, Idaho 83706

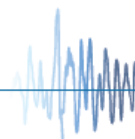
Telephone: (208) 342-5989 Ext. 115 Email: tsoppe@wegai.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant:  Date: 01 / 21 / 2015

Title: Vice President Company Name: W.E. Gundy & Associates, Inc.

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





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

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

Company Name: W.E. Gundy & Associates, Inc.

Name: Travis Soppe California License Number: S6115

Mailing Address: 250 Bobwhite Ct, Suite 100, Boise, Idaho 83703

Telephone: (208) 342-5989 Ext. 115 Email: tsoppe@wegai.com

Supports and Attachments Preapproval

- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

- Testing in accordance with: ICC-ES AC156
- Other (Please Specify): _____

Testing Laboratory

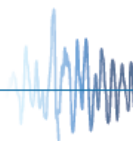
Company Name: Clark Dynamic Testing Laboratory

Contact Name: Brandon Ross

Mailing Address: 1801 Rout 51 Jefferson Hills, Pennsylvania 15025

Telephone: (412) 387-1025 Email: bross@clarktesting.com

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

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.50 for $z/h = 1.0$ and 1.12 for $z/h = 0.0$

S_{DS} (Design spectral response acceleration at short period, g) = 2.0 for $z/h = 1.0$ and 2.5 for $z/h = 0.0$

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) = 2.5

I_p (Importance factor) = 1.5

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

Equipment or Component Natural Frequencies (Hz) = See attachments

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

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) = _____

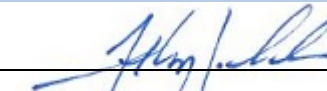
Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2010: Yes No

List of Attachments Supporting Special Seismic Certification

- Test Report(s) Drawings Calculations Manufacturer's Catalog
- Other(s) (Please Specify): Certified Product Line and Subcomponent Matrices, Subcomponent Certification Letter

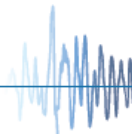
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019

Signature:  Date: July 10, 2015

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): _____



**SIEMENS TIASTAR MOTOR CONTROL CENTER - SEISMIC DESIGN
CERTIFIED PRODUCT LINE MATRIX**



ID Number	Main Bus Ampre	Enclosure Width (in.)	Enclosure Depth (in.)	Enclosure Height (in.)	Section Weight (lbs) Min-Max	Tested Section		Representative UUT
						Enclosure Type	Max Tested COG (in)	
NEMA 1, 1A, and 2 Enclosures								
TSTR-MCC-600-F	600	20	15	90	310 - 710		42.8	extrapolated
TSTR-MCC-600-F	600	20	20	90	370 - 770		42.8	extrapolated
TSTR-MCC-600-BB	600	20	21	90	390 - 790		42.8	extrapolated
TSTR-MCC-600-F	600	24	15	90	340 - 740		42.8	extrapolated
TSTR-MCC-600-F	600	24	20	90	400 - 800		42.8	extrapolated
TSTR-MCC-600-F	600	30	15	90	310 - 710		42.8	extrapolated
TSTR-MCC-600-F	600	30	20	90	370 - 770		42.8	extrapolated
TSTR-MCC-600-BB	600	30	21	90	390 - 790		42.8	extrapolated
TSTR-MCC-800-F	800	20	15	90	310 - 710	NEMA 1	42.8	UUT-1A / UUT-1B
TSTR-MCC-800-F	800	20	20	90	370 - 770		42.8	interpolated
TSTR-MCC-800-BB	800	20	21	90	390 - 790	NEMA 1A	42.8	UUT-2A / UUT-2B
TSTR-MCC-800-F	800	24	15	90	350 - 750		42.8	interpolated
TSTR-MCC-800-F	800	24	20	90	400 - 800		42.8	interpolated
TSTR-MCC-800-F	800	30	15	90	320 - 720		42.8	interpolated
TSTR-MCC-800-F	800	30	20	90	370 - 770		42.8	interpolated
TSTR-MCC-800-BB	800	30	21	90	390 - 790		42.8	interpolated
TSTR-MCC-1200-F	1200	20	15	90	320 - 720		37.3	interpolated
TSTR-MCC-1200-F	1200	20	20	90	370 - 800	NEMA 2	37.3	UUT-3A / UUT-3B UUT-3C / UUT-3D
TSTR-MCC-1200-BB	1200	20	21	90	390 - 790		37.3	interpolated
TSTR-MCC-1200-F	1200	24	15	90	350 - 750		37.3	interpolated
TSTR-MCC-1200-F	1200	24	20	90	400 - 800		37.3	interpolated
TSTR-MCC-1200-F	1200	30	15	90	320 - 720		37.3	interpolated
TSTR-MCC-1200-F	1200	30	20	90	380 - 780		37.3	interpolated
TSTR-MCC-1200-BB	1200	30	21	90	400 - 800		37.3	interpolated
TSTR-MCC-1600-F	1600	20	15	90	320 - 720		37.8	interpolated
TSTR-MCC-1600-F	1600	20	20	90	380 - 780	NEMA 1	37.8	UUT-6A / UUT-6B
TSTR-MCC-1600-BB	1600	20	21	90	400 - 800		37.8	interpolated

**SIEMENS TIASTAR MOTOR CONTROL CENTER - SEISMIC DESIGN
CERTIFIED PRODUCT LINE MATRIX**



ID Number	Main Bus Ampre	Enclosure Width (in.)	Enclosure Depth (in.)	Enclosure Height (in.)	Section Weight (lbs) Min-Max	Tested Section		Representative UUT
						Enclosure Type	Max Tested COG (in)	
TSTR-MCC-1600-F	1600	24	15	90	360 - 760		37.8	interpolated
TSTR-MCC-1600-F	1600	24	20	90	410 - 810		37.8	interpolated
TSTR-MCC-1600-F	1600	30	15	90	330 - 730		37.8	interpolated
TSTR-MCC-1600-F	1600	30	20	90	390 - 790		37.8	interpolated
TSTR-MCC-1600-BB	1600	30	21	90	410 - 810		37.8	interpolated
TSTR-MCC-2000-F	2000	20	15	90	340-740	NEMA 1	49.0	UUT-S1

General Notes:

- ¹⁾ All NEMA 1, 1A, and 2 Enclosures are constructed of carbon steel.
- ²⁾ Enclosures listed are plug in units that house the various subcomponents listed in the subcomponent matrices. Additionally all enclosures contain both vertical and horizontal bus with the corresponding rated amprage.
- ³⁾ Listed Center of Gravities are estimated by the manufacturer using modeling of the different units under test.

**SIEMENS TIASTAR MOTOR CONTROL CENTER - SEISMIC DESIGN
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID	Manufacturer	Description	Width (in) min-max	Depth (in) min-max	Height (in) min-max	Maximum Weight (lbs)	S _{DS} at z/h = 1.0	Representative
Main Lugs								
MLO-800A	Siemens	800A	20	8	24 - 30	45	2.00	UUT-1A
Main Breakers								
MCB-250A	Siemens	250A	20	8	30 - 36	30	2.00	UUT-1B
Main Disconnect Switches								
MDS-60A	Siemens	30A or 60A	20	8	24	18	2.00	extrapolated
MDS-100A	Siemens	100A	20	8	30	25	2.00	UUT-2A
MDS-200A	Siemens	200A	20	8	42 - 48	40	2.00	interpolated
MDS-400A	Siemens	400A	20	8	48 - 60	60	2.00	interpolated
MDS-600A	Siemens	600A	20	8	48 - 60	60	2.00	interpolated
MDS-800A	Siemens	800A	20	8	72	125	2.00	interpolated
MDS-1200A	Siemens	1200A	20	8	72	135	2.00	UUT-3A
Starters								
MS-1	Siemens	SIZE 1	15	8	6 - 24	30	2.00	UUT-1A / UUT-S1
MS-2	Siemens	SIZE 2	15	8	6 - 24	35	2.00	interpolated
MS-3	Siemens	SIZE 3	15	8	12 - 48	60	2.00	interpolated
MS-4	Siemens	SIZE 4	15	8	18 - 60	75	2.00	interpolated
MS-5	Siemens	SIZE 5	15 - 20	8	36 - 72	110	2.00	UUT-S1
MS-6	Siemens	SIZE 6	20 - 30	11	48 - 72	175	2.00	UUT-3C
Softstarters								
3RW403	Siemens	34A - 46A	15	8	18 - 30	35	2.00	UUT-1A
Feeders - Circuit Breaker								
FCB-125	Siemens	125A	15	8	6 - 12	18	2.00	UUT-1A
FCB-250	Siemens	250A	15	8	12 - 18	30	2.00	interpolated
FCB-400	Siemens	400A	15	8	24	30	2.00	interpolated
FCB-600	Siemens	600A	15	8	24	30	2.00	interpolated
FCB-800	Siemens	800A	20	8	36 - 48	120	2.00	interpolated
FCB-1200	Siemens	1200A	20	8	36 - 48	135	2.00	UUT-3D

**SIEMENS TIASTAR MOTOR CONTROL CENTER - SEISMIC DESIGN
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID	Manufacturer	Description	Width (in) min-max	Depth (in) min-max	Height (in) min-max	Maximum Weight (lbs)	S _{DS} at z/h = 1.0	Representative
Feeders - Disconnect Switch								
FDS-60A	Siemens	30A or 60A	15	8	12	18	2.00	UUT-2A
FDS-100A	Siemens	100A	15	8	18	25	2.00	interpolated
FDS-200A	Siemens	200A	15	8	30	30	2.00	interpolated
FDS-400A	Siemens	400A	20	8	42	35	2.00	interpolated
FDS-600A	Siemens	600A	20	8	42	35	2.00	UUT-2A
Single Phase Distribution Transformers								
XFMR-1-3	Hammond Power Systems	3 KVA	20	15	12	75	2.00	extrapolated
XFMR-1-5	Hammond Power Systems	5 KVA	20	15	12	80	2.00	extrapolated
XFMR-1-7.5	Hammond Power Systems	7.5 KVA	20	15	18	80	2.00	UUT-1B
XFMR-1-10	Hammond Power Systems	10 KVA	20	15	18	112	2.00	interpolated
XFMR-1-15	Hammond Power Systems	15 KVA	20	15	18	165	2.00	interpolated
XFMR-1-25	Hammond Power Systems	25 KVA	20	20	24	230	2.00	interpolated
XFMR-1-30	Hammond Power Systems	30 KVA	20	20	24	250	2.00	interpolated
XFMR-1-37.5	Hammond Power Systems	37.5 KVA	20	20	36	285	2.00	interpolated
XFMR-1-45	Hammond Power Systems	45 KVA	20	20	36	405	2.00	UUT-3D
Three Phase Distribution Transformers								
XFMR-3-9	Hammond Power Systems	9 KVA	20	15	18	165	2.00	extrapolated
XFMR-3-15	Hammond Power Systems	15 KVA	20	20	18	165	2.00	UUT-2A
XFMR-3-25	Hammond Power Systems	25 KVA	20	20	18	240	2.00	interpolated
XFMR-3-30	Hammond Power Systems	30 KVA	20	20	18	255	2.00	interpolated
XFMR-3-37.5	Hammond Power Systems	37.5 KVA	20	20	24	260	2.00	interpolated
XFMR-3-45	Hammond Power Systems	45 KVA	20	20	24	345	2.00	UUT-3B
Lighting Panelboards								
PNLBD-18	Siemens	18 Circuit	15	8	30	40	2.00	UUT-2A
PNLBD-30	Siemens	30 Circuit	15	8	36	50	2.00	interpolated
PNLBD-42	Siemens	42 Circuit	15	8	42	65	2.00	UUT-3B

**SIEMENS TIASTAR MOTOR CONTROL CENTER - SEISMIC DESIGN
CERTIFIED SUBCOMPONENT MATRIX**



Subcomponent ID	Manufacturer	Description	Width (in) min-max	Depth (in) min-max	Height (in) min-max	Maximum Weight (lbs)	S _{DS} at z/h = 1.0	Representative
HMI Panel								
SmartStart	Siemens	12" Touchscreen	20	8	18	26	2.00	UUT-1B
Drives								
MM440 "A" Frame	Siemens	0.6A - 3.9A	15	8	18	25	2.00	UUT-1B
MM440 "B" Frame	Siemens	4A - 8.5A	15	8	24	35	2.00	interpolated
MM440 "C" Frame	Siemens	10.5A - 30.5A	15	8	24 - 36	50	2.00	interpolated
MM440 "D" Frame	Siemens	38A - 59A	20	12	48	80	2.00	interpolated
MM440 "E" Frame	Siemens	71A - 96A	20	12	60	100	2.00	interpolated
MM440 "F" Frame	Siemens	103A - 169A	20	15	72	200	2.00	interpolated
MM440 "FX" Frame	Siemens	200A - 245A	20 - 30	15	72	400	2.00	UUT-2B
G120 "FSA" Frame	Siemens	1.3A - 4.1A	15	8	18 - 42	60	2.00	UUT-1
18 Pulse "E" Frame	Siemens	60A - 90A	40	20	72	300	2.00	UUT-6

General Notes:

All transformers are "dry type" with aluminum coils.

UUT-1A/B

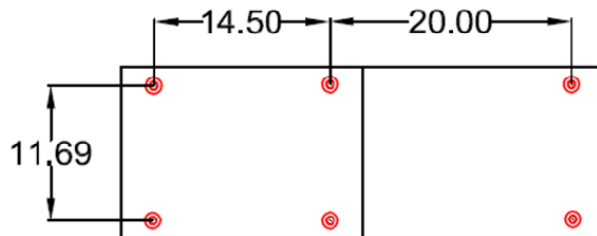
**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Floor mounted with six (6) 5/8" - Grade 8 Bolts



UUT-1 Shown Behind UUT-2



Manufacturer: Siemens | **Test Location:** Clark Labs, Pittsburgh, PA | **Test Date:** August 2014

Product Line: Tiastar Motor Control Center - Seismic Design

Identification Number: TSTR-MCC-800-F | **Serial Number:** 89ES15881020

UUT Function: Electrical operation and control of various types of motors for industrial applications.

UUT Description: Unit consists of 2 - 20" wide by 15" deep segments bolted together. Unit is constructed with NEMA 1 carbon steel enclosures, has a main bus ampere rating of 800 amps, and allows for front only sub-component installation.

UUT Subcomponent Description: UUT-1A (left section) contains a MLO-800A main lug, MS-1 starter, FCB-125 feeder circuit breaker, 3RW403 softstarter, and a G120 "FSA" Frame drive. UUT-1B (right section) contains a MCB-250A main breaker, XFMR-1-7.5 single phase distribution transformer, SmartStart HMI panel, and a MM440 "A" Frame drive.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)				Natural Frequency (Hz)		
	COG	Width	Depth	Height	FB	SS	V
790	42.8"	40"	15"	90"	9.47	11.29	>33

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{DS} (g)	z / h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2013 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53
	2.50	0.0	1.5	2.50	1.00	1.67	0.67

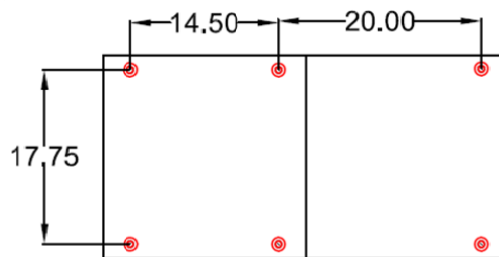
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-2A/B

UNIT UNDER TEST (UUT)
SUMMARY SHEET



Mounting Details: Floor mounted with six (6) 5/8" - Grade 8 Bolts



Manufacturer: Siemens | **Test Location:** Clark Labs, Pittsburgh, PA | **Test Date:** August 2014

Product Line: Tiastar Motor Control Center - Seismic Design

Identification Number: TSTR-MCC-800-BB | **Serial Number:** 89EB15881021

UUT Function: Electrical operation and control of various types of motors for industrial applications.

UUT Description: Unit consists of 2 - 20" wide by 21" deep segments bolted together. Unit is constructed with NEMA 1A carbon steel enclosures, has a main bus ampre rating of 800 amps, and allows for front and back (referenced as BB) sub-component installation.

UUT Subcomponent Description: UUT-2A (left section) contains a MDS-100A Main Disconnect Switch, FDS-60A feeder disconnect switch, FDS-600A feeder disconnect switch, XFMR-3-15 three phase distribution transformer, and a PNLBD-18 lighting panelboard. UUT-2B (right section) contains a MM440 "FX" Frame drive.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)				Natural Frequency (Hz)		
	COG	Width	Depth	Height	FB	SS	V
1,204	41.5"	40"	21"	90"	11.35	5.74	>33

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{DS} (g)	z / h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2013 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53
	2.50	0.0	1.5	2.50	1.00	1.67	0.67

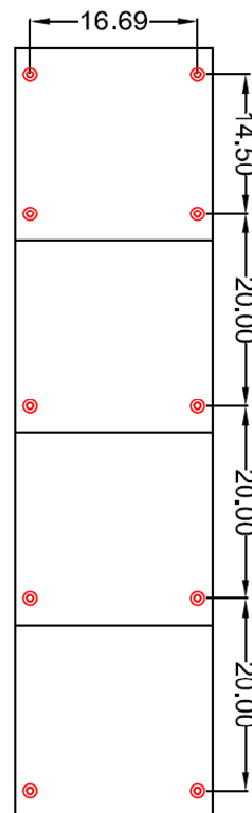
Note: The unit was full of contents during testing and remained fuctional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-3A/B/C/D

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Floor mounted with ten (10) 5/8" - Grade 8 Bolts



Manufacturer: Siemens **Test Location:** Clark Labs, Pittsburgh, PA **Test Date:** August 2014

Product Line: Tiastar Motor Control Center - Seismic Design

Identification Number: TSTR-MCC-1200-F **Serial Number:** 89EF15881022

UUT Function: Electrical operation and control of various types of motors for industrial applications.

UUT Description: Unit consists of 4 - 20" wide by 20" deep segments bolted together. Unit is constructed with NEMA 2 carbon steel enclosures, has a main bus ampere rating of 1200 amps, and allows for front only sub-component installation.

UUT Subcomponent Description: UUT-3A (left section) contains a MDS-1200A main disconnect switch. UUT-3B (left-mid section) contains a PNLBD-42 lighting panelboard and a XFMR-3-45 three phase distribution transformer. UUT-3C (right-mid section) contains a MS-6 starter. UUT-3D (right section) contains a FCB-1200 feeder circuit breaker and a XFMR-1-45 single phase distribution transformer.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)				Natural Frequency (Hz)		
	COG	Width	Depth	Height	FB	SS	V
2,288	37.3"	80"	20"	90"	10.27	10.04	>33

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{DS} (g)	z / h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2013 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53
	2.50	0.0	1.5	2.50	1.00	1.67	0.67

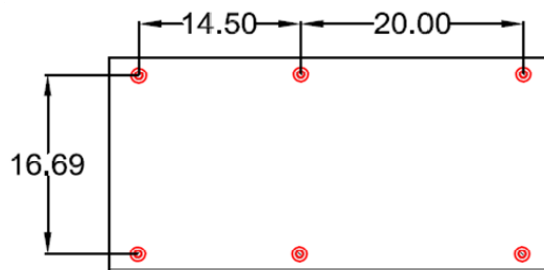
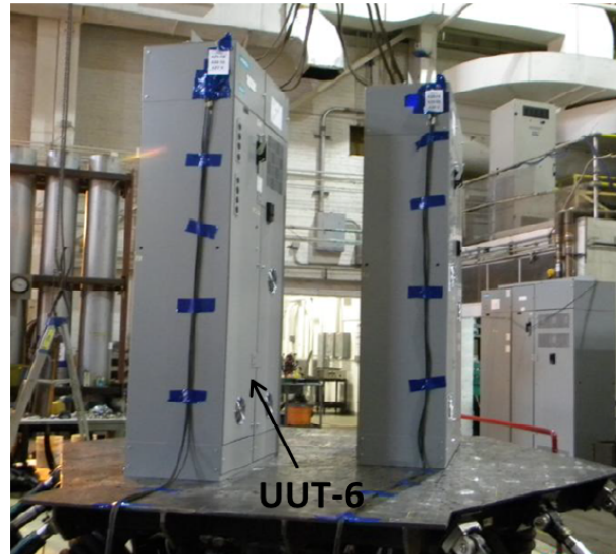
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-6A/B

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Floor mounted with six (6) 5/8" - Grade 8 Bolts



Manufacturer: Siemens | **Test Location:** Clark Labs, Pittsburgh, PA | **Test Date:** August 2014

Product Line: Tiastar Motor Control Center - Seismic Design

Identification Number: TSTR-MCC-1600-F | **Serial Number:** 89EF15881025

UUT Function: Electrical operation and control of various types of motors for industrial applications.

UUT Description: Unit consists of 2 - 20" wide by 20" deep segments bolted together. Unit is constructed with NEMA 1 carbon steel enclosures, has a main bus ampere rating of 1600 amps, and allows for front only sub-component installation.

UUT Subcomponent Description: UUT-6A (left section) and UUT-6B (right section) are combined to support the 18 Pulse "E" Frame Drive.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)				Natural Frequency (Hz)		
	COG	Width	Depth	Height	FB	SS	V
1,000	37.8"	40"	20"	90"	10.61	9.18	>33

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{DS} (g)	z / h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2013 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53
	2.50	0.0	1.5	2.50	1.00	1.67	0.67

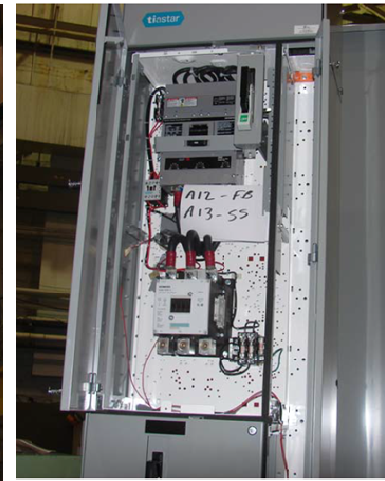
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-S1

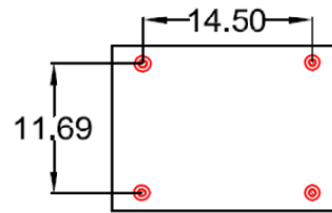
**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Floor mounted with four (4) 1/2" - Grade 5 Bolts



UUT-S1



Manufacturer: Siemens | **Test Location:** Clark Labs, Pittsburgh, PA | **Test Date:** November 2008

Product Line: Tiastar Motor Control Center - Seismic Design

Identification Number: TSTR-MCC-2000-F | **Serial Number:** 3001829302

UUT Function: Electrical operation and control of various types of motors for industrial applications.

UUT Description: Unit consists of a single 20" wide by 15" deep NEMA 1 carbon steel enclosures, has a main bus ampere rating of 2000 amps, and allows for front only sub-component installation.

UUT Subcomponent Description: The unit contains 3 - MS-1 Starters and a MS-5 starter

UUT PROPERTIES

Weight (lb)	Dimensions (inches)				Natural Frequency (Hz)		
	COG	Width	Depth	Height	FB	SS	V
482	49.0"	20"	15"	90"	6.3	8.6	>33

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{DS} (g)	z / h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2013 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53
	2.50	0.0	1.5	2.50	1.00	1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.