



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0042

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: ABB Electrical Control Systems S. de R.L. de C.V.

Manufacturer's Technical Representative: Harshavardhan Karandikar

Mailing Address: Camino Al Ojo De Agua # 203, Apodaca, Nuevo Leon 66600 Mexico

Telephone: 001-407-547-7707

Email: harsh.m.karandikar@us.abb.com

Product Information

Product Name: Switchgear/Switchboards

Product Type: Switchgear - Medium Voltage

Product Model Number: See I. Certified Product Table attached

General Description: Load interrupter switchgear in light gauge sheet metal over metal framed enclosures.

Mounting Description: Rigid, 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: W.E. Gundy & Associates Inc.

Contact Person: Travis Soppe

Mailing Address: P.O. Box 9121, Boise, ID 83707

Telephone: (208) 342-5989

Email: tsoppe@wegai.com

Title: President





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
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: P.O. Box 9121, Boise, ID 83707
Telephone: (208) 342-5989 Email: tsoppe@wegai.com

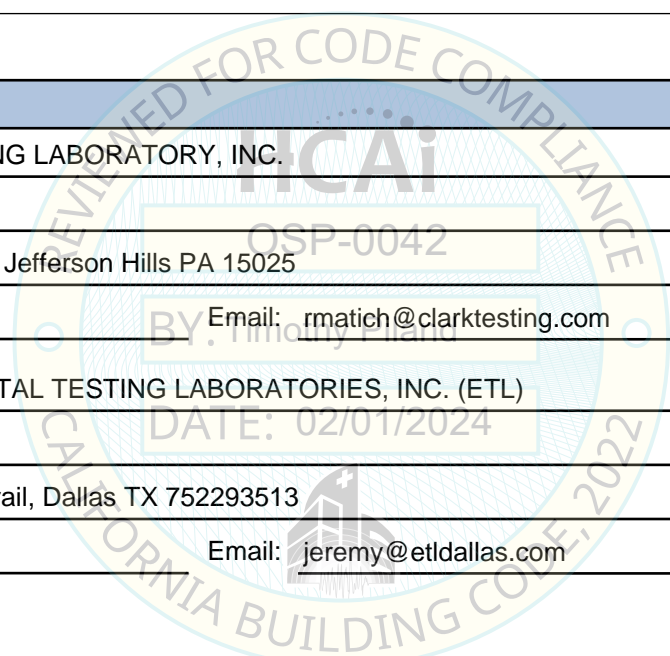
Certification Method

GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
 Other (Please Specify): _____

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.
Contact Person: Russell Matich
Mailing Address: 1801 Route 51, Jefferson Hills PA 15025
Telephone: (412) 387-1004 Email: rmatich@clarktesting.com

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)
Contact Person: Jeremy Lange
Mailing Address: 11034 Indian Trail, Dallas TX 752293513
Telephone: (972) 247-9657 Email: jeremy@etldallas.com





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FACILITIES DEVELOPMENT DIVISION**

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.50 for SDS = 2.0 at z/h = 1 and 1.13 for SDS = 2.5 at z/h = 0

SDS (Design spectral response acceleration at short period, g) = 2.00 (z/h = 1.0) and 2.50 (z/h = 0.0)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

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 02/01/2030

Date: 2/1/2024

Name: Timothy Piland Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

Condition of Approval (if applicable): DATE: 02/01/2024

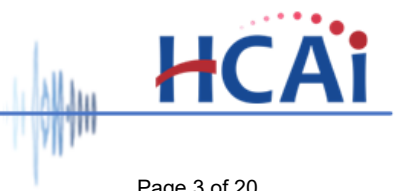
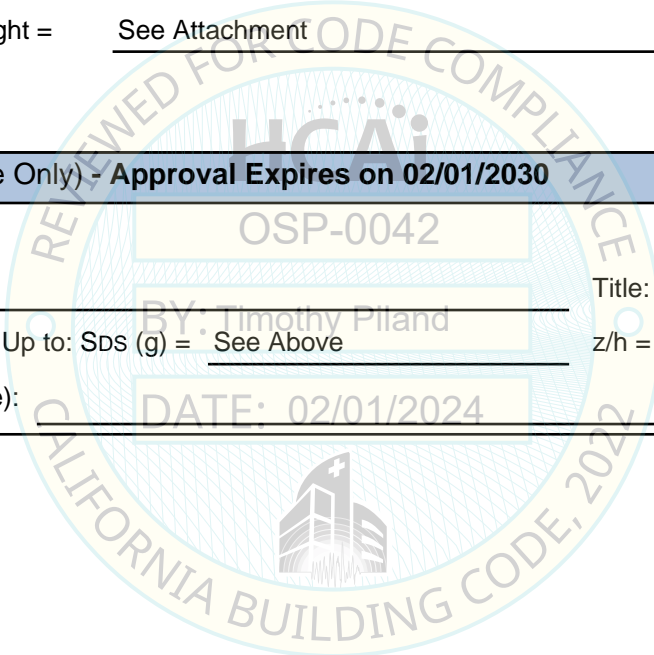


TABLE 1

**ABB BREAKMASTER LOAD INTERRUPTER SWITCH
SEISMIC CERTIFICATION PRODUCT LINE MATRIX**



Frame Type ¹	Main Bus Amperage	NEMA Rating ²	Main Enclosure Dimensions (in)			Max COG (in)	Weight (lbs) min - max	Representative UUT ³
			Width	Depth	Height			
BM-LIS-C/A	600A	3R	20	60	123	68	1154	UUT_x-6A
BM-LIS-A	-	1	35	60	90	48	1207	UUT_z-2B
BM-LIS-C	600 - 1200	1 / 2 / 3R	20 - 35	50 - 60	90 - 123	66	600 - 900	interpolated
BM-LIS-C	600 - 1200	1 / 2 / 3R	25 - 35	50 - 60	90 - 123	66	600 - 1200	interpolated
BM-LIS-C	600 - 1200	1 / 2 / 3R	30 - 35	50 - 60	90 - 123	66	600 - 1400	interpolated
BM-LIS-A	600 - 1200	1 / 2 / 3R	20 - 35	50 - 60	90 - 123	66	600 - 900	interpolated
BM-LIS-A	600 - 1200	1 / 2 / 3R	25 - 35	50 - 60	90 - 123	66	600 - 1200	interpolated
BM-LIS-A	600 - 1200	1 / 2 / 3R	30 - 35	50 - 60	90 - 123	66	600 - 1500	interpolated
BM-LIS-M/S	1200A	1	40	50	90	45	1368	UUT_z-3
BM-LIS-S	1200A	1	40	60	90	46	1400	UUT_x-6B
BM-LIS-S	1200A	3R	35	60	123	50	1604	UUT_x-5B
BM-LIS-C	1200A	1	35	60	90	21	1604	UUT_z-4
BM-LIS-S	600A	1	35	60	90	48	1608	UUT_x-5A
BM-LIS-S	600 - 1200	1 / 2 / 3R	35	50 - 60	90 - 123	48	1200 - 1600	interpolated
BM-LIS-B	600 - 1200	1 / 2 / 3R	35	50 - 60	90 - 123	48	1200 - 1600	interpolated
BM-LIS-C	600A	1	35	50	90	43	1697	UUT_z-1

Notes:


¹ The load interrupter switch product line consists of enclosure designs as designated below:

S - Single Section / M - Main Section / T - Tie Section / B - Branch Section / C - Cable Section / A - Auxiliary Section

² NEMA 1 and NEMA 2 enclosures are of identical construction. All enclosures are constructed of carbon steel and manufactured by ABB.

³ The units were tested at different times and the subscripts on the UUT's reference the following lab test reports:

x - 3380-R / y - 10-01425 / z - 17221

TABLE 1	ABB BREAKMASTER LOAD INTERRUPTER SWITCH SEISMIC CERTIFICATION PRODUCT LINE MATRIX						 WEGAI <small>W.E. GUNDY & ASSOCIATES, INC.</small> <small>STRUCTURAL & EARTHQUAKE ENGINEERING</small>	
	600A	1	35	50	80	33	1740	UUT _y -1
BM-LIS-M	600 - 1200	1 / 2 / 3R	35 - 44	50 - 60	80 - 123	33	1800 - 1900	interpolated
BM-LIS-M	600 - 1200	1 / 2 / 3R	40 - 44	50 - 60	80 - 123	33	1800 - 2400	interpolated
BM-LIS-M	600 - 1200	1 / 2 / 3R	44	50 - 60	80 - 123	34	1800 - 2800	interpolated
BM-LIS-T	600 - 1200	1 / 2 / 3R	35 - 44	50 - 60	80 - 123	33	1800 - 1900	interpolated
BM-LIS-T	600 - 1200	1 / 2 / 3R	40 - 44	50 - 60	80 - 123	33	1800 - 2400	interpolated
BM-LIS-M/S	1200A	1	40	60	90	44	2328	UUT_z-2A
BM-LIS-T	600 - 1200	1 / 2 / 3R	44	50 - 60	80 - 123	34	1800 - 2800	interpolated
BM-LIS-M	1200A	3R	44	60	99	35	2796	UUT_y-2

Notes:

- ¹ The load interrupter switch product line consists of enclosure designs as designated below:
 S - Single Section / M - Main Section / T - Tie Section / B - Branch Section / C - Cable Section / A - Auxiliary Section
- ² NEMA 1 and NEMA 2 enclosures are of identical construction. All enclosures are constructed of carbon steel and manufactured by ABB.
- ³ The units were tested at different times and the subscripts on the UUT's reference the following lab test reports:
 x - 3380-R / y - 10-01425 / z - 17221

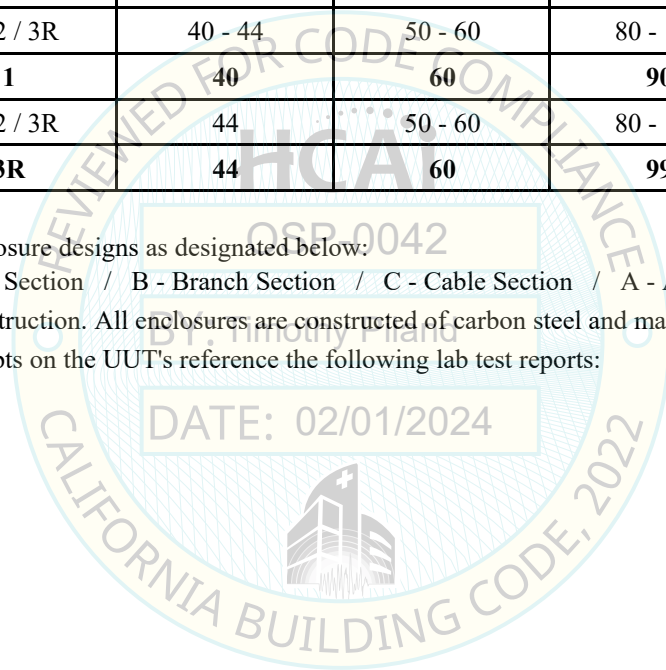


ABB BREAKMASTER LOAD INTERRUPTER SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX



ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT
Fuses				
9F62DDD*	MERSEN	EJO Type	10	extrapolated
A155F1C0R0-15E/30E	MERSEN	Fuse Ferraz	11	UUT _x -6
A055B1DAR0-10E/200E	MERSEN	Fuse Ferraz	12	interpolated
A055B2DAR0-250E/450E	MERSEN	Fuse Ferraz	12	interpolated
9F62FCB*	MERSEN	EJO Type	16	interpolated
9F62FDD*	MERSEN	EJO Type	20	interpolated
9F62KCB*	MERSEN	EJO Type	40	UUT _x -6
A155B3D0R0-300E	MERSEN	Fuse Ferraz	45	UUT _x -6
Fuses				
SCE121*	S&C ELECTRIC	SM4 Fuse Model Refill	57	extrapolated
SCE251*	S&C ELECTRIC	SM4 Fuse Model Refill	57	extrapolated
SCE122005R4	S&C ELECTRIC	SM4 Fuse Model Refill	70	UUT _x -5
SCE252*	S&C ELECTRIC	SM4 Fuse Model Refill	70	interpolated
SCE131*	S&C ELECTRIC	SM5 Fuse Model Refill	91	interpolated
SCE261*	S&C ELECTRIC	SM5 Fuse Model Refill	91	interpolated
SCE262*	S&C ELECTRIC	SM5 Fuse Model Refill	104	interpolated
SCE132600R4	S&C ELECTRIC	SM5 Fuse Model Refill	104	UUT _x -5
Control Power Transformers				
CPTS3605242A	ITI-GE	CPT (2400-4800/240-120)	165	UUT _x -6
CPTS360*	ITI-GE	CPT	165	interpolated
CPTS595551442	ITI-GE	CPT (7200-14400/240-120)	165	UUT _x -5
CPTA6052400D148	ABB	CPT (2400:120/240) multi-tap	130	interpolated
CPTA6054160D148	ABB	CPT (4160/120/240) multi-tap	130	interpolated
CPTA6054800D148	ABB	CPT (4800/120/240) multi-tap	130	interpolated
CPTA9557200D146	ABB	CPT (7200/120/240) in-line tap	130	UUT _z -2B
CPTA9558400D146	ABB	CPT (8400/120/240) in-line tap	130	interpolated
CPTA95512000D146	ABB	CPT (12000/120/240) in-line tap	130	interpolated
CPTA9557200D148	ABB	CPT (7200/120/240) multi-tap	130	interpolated
CPTA9558400D148	ABB	CPT (8400/120/240) multi-tap	130	interpolated
CPTA95512000D148	ABB	CPT (12000/120/240) multi-tap	130	interpolated
CPTA95512470D148	ABB	CPT (12470/120/240) multi-tap	130	interpolated
CPTA95513200D148	ABB	CPT (13200/120/240) multi-tap	130	interpolated
CPTA95513800D148	ABB	CPT (13800/120/240) multi-tap	130	interpolated
CPTA95514400D148	ABB	CPT (14400/120/240) multi-tap	130	interpolated
CPTA9558400D150	ABB	CPT (8400/120/240) multi-tap	130	interpolated
CPTA95512470D150	ABB	CPT (12470/120/240) multi-tap	130	interpolated
CPTA95513200D150	ABB	CPT (13200/120/240) multi-tap	130	interpolated
CPTA95513800D150	ABB	CPT (13800/120/240) multi-tap	130	UUT _z -2B

Notes:

ABB BREAKMASTER LOAD INTERRUPTER SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX



ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT
Selector Break Switch				
110C9939P2	POWERCON	Switch 600A, 40kA w/OP Handle	160	UUT _x -5
110C9939P*	POWERCON	Switch	160	interpolated
110C9939P5	POWERCON	Switch 1200A, 61kA w/OP Handle	180	UUT _x -5
110C9781DEP (VK3M1564U)	ABB	VersaRupter 15kV, 600A, 40kA	75	UUT _z -1
110C9781EMP (VK3L1516U)	ABB	VersaRupter 15kV, 1200A, 61kA	110	UUT _z -2A
245869003	ABB	NM Motor and Control board	13	UUT _z -2A
Break Switch Accessories				
110C9661G1	ABB	Light, Duplex Receptacle & Light Switch	48	UUT _x -5
110C9661G*	ABB	Light, Duplex Receptacle & Light Switch	48 - 54	interpolated
110C9661G4	ABB	Light, Duplex Receptacle & Light Switch	54	UUT _y -2
IYMX054273M0001	ABB	Grounding Switch Type EB24	53	UUT _z -3
Voltage Transformer				
PTG3-2-60-242FF	ITI-GE	PT 2400-4800/120V	34	UUT _x -6
PTG*	ITI-GE	PT	34 - 85	interpolated
PTG5-2-110-1142FF	ITI-GE	PT 7200-14400/120V	85	UUT _x -5
7525A51G01	ABB	PT 2400/4160Y, 120V	36	UUT _z -1
7525A51G02	ABB	PT 4200/4200Y, 120V	36	interpolated
7525A51G03	ABB	PT 4800/4800Y, 120V	36	interpolated
7525A67G05	ABB	PT 7200/12470Y, 120V	69	interpolated
7525A67G06	ABB	PT 7620/13200Y, 120V	69	interpolated
7525A67G07	ABB	PT 8400/14560Y, 120V	69	interpolated
7525A67G08	ABB	PT 12000/12000Y, 120V	69	interpolated
7525A67G09	ABB	PT 13200/13200Y, 120V	69	interpolated
7525A67G10	ABB	PT 14400/14400Y, 120V	69	UUT _z -2A
7525A67G106	ABB	PT 12000/12000Y, 120V, 100:1	69	interpolated
Circuit Breaker				
SVEFFB1AAAZA000003	GE	Fixed VCB (Vacuum Circuit Breaker)	375	UUT _y -1
SV*	GE	Fixed VCB (Vacuum Circuit Breaker)	375 - 419	interpolated
SVEFGB2AAAZA000003	GE	Fixed VCB (Vacuum Circuit Breaker)	419	UUT _y -2
VD4/N 15.20.32 P210	ABB	Fixed VCB 15kV / 2000A / 31.5kA P210	176	UUT _z -1
VD4 15.12.40 P210	ABB	Fixed VCB 15kV / 1200-2000A / 40kA P210	165	UUT _z -2A
VM1/N 15.20.32 P210	ABB	Fixed VCB 15kV / 2000A / 31.5kA P210	287	UUT _z -4
Current Transformers				
780101	ITI-GE	CT's Series 780 (100:5-2000:5)	30	UUT _x -6
780*	ITI-GE	CT's Series 780 (100:5-2000:5)	30	interpolated
780202	ITI-GE	CT's Series 780 (100:5-2000:5)	30	UUT _x -5

Notes:

ABB BREAKMASTER LOAD INTERRUPTER SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX



ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT
Current Transformers Cont'd				
7527A70G08	ABB	CT's, 600A, C50	29	UUT _z -2A
7527A70G01	ABB	CT's, 100A, C10	29	interpolated
7527A70G02	ABB	CT's, 150A, C10	29	interpolated
7527A70G03	ABB	CT's, 200A, C20	29	interpolated
7527A70G04	ABB	CT's, 250A, C20	29	interpolated
7527A70G05	ABB	CT's, 300A, C20	29	interpolated
7527A70G06	ABB	CT's, 400A, C20	29	interpolated
7527A70G07	ABB	CT's, 500A, C50	29	interpolated
7527A70G10	ABB	CT's, 1000A, C100	29	interpolated
7527A70G11	ABB	CT's, 1200A, C200	29	interpolated
7527A70G12	ABB	CT's, 1500A, C200	29	interpolated
7527A70G09	ABB	CT's, 800A, C100	29	UUT _z -1
TCK-50-S6453ZZZ	CORE	Ground Fault Sensor CT 50:5	150	UUT _z -2A
Power Management and Metering				
PQMT20CA	GE	Power Quality Meter PQM	5	UUT _x -6
1SVR427032R0000	ABB	Power Supply CP-E	1	UUT _z -2B
Shark100	Shark	Shark 100 Power & Energy Meter	2	UUT _z -1
Shark200	Shark	Shark 200 Power & Energy Meter	2	UUT _z -1
Ammeter				
0077-05FA-LALA-C6	CROMPTON	Ammeter	1	UUT _x -6
007-05FA*	CROMPTON	Heater Ammeter 1-10A	1	interpolated
007-05FA*	CROMPTON	AC Ammeter 100-2000A	1	interpolated
0077-05FA-LSTM-C7	CROMPTON	Ammeter	1	UUT _x -6
Voltmeter				
077-05GA-PZUA-C6	CROMPTON	Heater Ammeter 0-2.4kV	1	UUT _x -5
077-05GA*	CROMPTON	Heater Ammeter 0-15kV	1	interpolated
007-05GA*	CROMPTON	AC Voltmeter 150V	1	interpolated
077-05GA-PZWD-C7	CROMPTON	Heater Ammeter 0-14.4kV	1	UUT _x -6
Relay				
APVR - 120V	GE	APVR Phase Loss & Sequence Detection	1	UUT _x -6
APVR*	GE	APVR Phase Loss & Sequence Detection	1	interpolated
APVR - 480V	GE	APVR Phase Loss & Sequence Detection	1	UUT _x -6
MIFIPI15E10H100	GE	Relay (Fill With ModSheet)	10	UUT _y -2
SR735-5-5-HI-485	GE	Relay (Fill With ModSheet)	12	UUT _y -1
350* / F35* / SR73*	GE	Relay (Fill With ModSheet)	10 - 35	interpolated
MIF* / FE35*	GE	Relay (Fill With ModSheet)	10 - 35	interpolated
F35N03VKHF8FH6EMXXPXX	GE	Relay (Fill With ModSheet)	35	UUT _y -2

Notes:

ABB BREAKMASTER LOAD INTERRUPTER SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX



ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT
Relay - cont'd				
XAFXXXXXXXXXXXXXXXXX1G	ABB	REF 615	9	UUT _z -3
SEL#0787	SEL	787 Transformer Protection Relay	6	UUT _z -4
SEL#0735	SEL	735 Power Quality and Revenue Meter	5	interpolated
SEL#0751	SEL	751 Feeder Protection Relay	6	UUT _z -4
1SBH136001R	ABB	Contactory Relay	1	UUT _z -2B
1SBH137001R	ABB	Control Relay	1	UUT _z -2B
Space Heater Asm				
110C9991G1	ABB	Space Heater	11	UUT _x -5
110C9991G*	ABB	Space Heater	11	interpolated
110C9991G3	ABB	Space Heater	11	UUT _y -2
Arresters				
9L12PPM010S	GE	Intermediate Arrester 3-21kV	5	UUT _x -5
9L20FXX003XHS	GE	Distribution Arrester 3-21kV	6	UUT _x -5
9L*	GE	Arrester	4 -10	interpolated
9L11XPM021S	GE	Station Arrester 3-21kV	10	UUT _x -5
Glow Tube				
RS05010002	Glow Tube Inc.	Glow Tube	< 1	UUT _x -5
ATS Controller				
OXCO1	ABB	TruControl Controller	6.0	UUT _z -2B
Hygrostat				
FLZ 600	Pfannenberg	Hygrostat/Humidity regulator	< 1	UUT _z -2A
FLZ 610	Pfannenberg	Hygrostat/Humidity regulator	< 1	UUT _z -2A
W43A*	Johnson Controls	Hygrostat/Humidity regulator	< 1	UUT _z -1
Ground Studs				
21706	Hubbell	Ground Studs	< 1	UUT _z -2A
IR Viewports				
FLK-075-CLKT	FLUKE	IR Viewport	1.1	UUT _z -3

Notes:

UUT_y-1

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



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: Clark Testing
Product: Break Master Load Interrupter Switch	Test Date: March 2016
Model Number: BM-LIS-M / 600A	Report Number: 15-01425

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 600A NEMA 1 main section enclosure housing copper bus, current and voltage transformers, relays, low voltage box, and a fixed vacuum circuit breaker.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,740	35	50	80	9.8	13.2	16.8

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_y-2

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



Mounting Details: Rigid floor mounted with (4) 5/8" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: Clark Testing
Product: Break Master Load Interrupter Switch	Test Date: March 2016
Model Number: BM-LIS-M / 1200A	Report Number: 15-01425

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 1200A NEMA 3R main section enclosure housing copper bus, current and voltage transformers, arresters, relays, duplex receptacle, space heater, thermostat, and a fixed vacuum circuit breaker.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,796	44	60	99	8.7	5.6	11.7

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_x-5A

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: Clark Testing
Product: Break Master Load Interrupter Switch	Test Date: January 2014
Model Number: BM-LIS-M / 600A	Report Number: 3380-R

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 600A NEMA 1 single section enclosure copper bus, fuses, current, voltage, and control power transformers, arresters, relays, metering components, duplex receptacle, space heater, thermostat, glow tube, low voltage box, and 600A switch.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,608	35	60	90	11.2	7.8	11.6

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{Ds} (g)	z / h	I _p	A _F FLX-H (g)	A _R IG-H (g)	A _F FLX-V (g)	A _R IG-V (g)
CBC 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_x-5B

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



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc. **Test Location:** Clark Testing

Product: Break Master Load Interrupter Switch **Test Date:** January 2014

Model Number: BM-LIS-M / 1200A **Report Number:** 3380-R

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 1200A NEMA 3R single section enclosure copper bus, fuses, current, voltage, and control power transformers, arresters, relays, metering components, duplex receptacle, space heater, thermostat, glow tube, low voltage box, and 1200A switch.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,604	35	60	123	11.2	7.8	11.6

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_x-6A

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: Clark Testing
Product: Break Master Load Interrupter Switch	Test Date: January 2014
Model Number: BM-LIS-C/A / 600A	Report Number: 3380-R
UUT Function: Electrical primary or secondary disconnect switch for electrical applications	
UUT Description: 600A NEMA 3R cable / auxiliary section enclosure copper bus, fuses, current, voltage, and control power transformers, relays, and metering components.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,154	20	60	123	15.3	7.7	12.1

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_x-6B

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



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: Clark Testing
Product: Break Master Load Interrupter Switch	Test Date: January 2014
Model Number: BM-LIS-S / 1200A	Report Number: 3380-R

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 1200A NEMA 1 single section enclosure copper bus, fuses, current, voltage, and control power transformers, relays, and metering components, and switch.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,400	40	60	90	15.3	7.7	12.1

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{Ds} (g)	z / h	I _p	A _F LX-H (g)	A _R IG-H (g)	A _F LX-V (g)	A _R IG-V (g)
CBC 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_{Z-1}

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



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc. **Test Location:** ETL

Product: Break Master Load Interrupter Switch **Test Date:** November 2023

Model Number: BM-LIS-C / 600A **Report Number:** 17221

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 600A NEMA 1 single section enclosure copper bus, VersaRupter selector switch (VK3M1564U), voltage transformer (7525A51G01), VD4 circuit breaker (VD4/N 15.20.32 P210), current transformer (7527A70G09), power meter (Shark 100, 200), and hygostat (W43A).

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,697	35	50	90	13.0	8.0	>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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_{Z-2A}

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc. **Test Location:** ETL

Product: Break Master Load Interrupter Switch **Test Date:** November 2023

Model Number: BM-LIS-M/S / 1200A **Report Number:** 17221

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 1200A NEMA 1 single section enclosure copper bus, CPT (CPTA95513800D150), VersaRupter selector switch (VK3L1516U), selector switch motor (245869003), voltage transformer (7525A67G10), circuit breaker (VD4 15.12.40 P210), current transformer (7527A70G08), hygrostat (FLZ 600, 610), ground fault sensor (TCK-50-S6453ZZZ), and ground studs (21706)

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,328	40	60	90	9.6	7.8	22.2

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_{Z-2B}

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



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: ETL
Product: Break Master Load Interrupter Switch	Test Date: November 2023
Model Number: BM-LIS-A	Report Number: 17221

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: NEMA 1 auxiliary section enclosure, CPT (CPTA9557200D146), power supply (1SVR427032R0000), relay (1SBH137001R, 1SBH136001R), and ATS controller (OXCO1).

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,207	35	60	90	9.6	19.8	22.2

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_{Z-3}

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



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: ETL
Product: Break Master Load Interrupter Switch	Test Date: November 2023
Model Number: BM-LIS-M/S / 1200A	Report Number: 17221

UUT Function: Electrical primary or secondary disconnect switch for electrical applications

UUT Description: 1200A NEMA 1 single section enclosure copper bus, ground switch type EB24 (IYMX054273M0001), relay (XAFXXX1G), and IR viewports (FLK-075-CLKT).

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,368	40	50	90	19.8	6.7	8.9

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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_{z-4}

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



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts



Manufacturer: ABB Inc.	Test Location: ETL
Product: Break Master Load Interrupter Switch	Test Date: November 2023
Model Number: BM-LIS-C / 1200A	Report Number: 17221
UUT Function: Electrical primary or secondary disconnect switch for electrical applications	
UUT Description: 1200A NEMA 1 single section enclosure copper bus, circuit breaker (VM1/N 15.20.32 P210), and relay (SEL#0787, 0751).	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,604	35	60	90	16.9	7.9	15.8

SEISMIC TEST PARAMETERS

Building Code / Test Criteria	S _{Ds} (g)	z / h	I _p	A _{FLEX-H} (g)	A _{RIG-H} (g)	A _{FLEX-V} (g)	A _{RIG-V} (g)
CBC 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0	1.5	-	-	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.