



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-0825

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: ABB Inc.

Manufacturer's Technical Representative: Terry Neighbours

Mailing Address: 6801 Industrial Dr, Melbane, NC 27302

Telephone: (407) 314-6126

Email: terry.l.neighbours@us.abb.com

Product Information

Product Name: Advance and Safegear MV Switchgear

Product Model Number(s): See attachment

Product Category: Switchgear/Switchboards

Product Sub-Category: Switchgear - Medium Voltage

General Description: Metalclad switchgear that provides medium voltage circuit protection

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: 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



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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: Scott Jamison

Mailing Address: 1801 Route 51, Jefferson Hills PA 15025

Telephone: (412) 387-1001

Email: sjamison@clarktesting.com

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Jeremy Lange

Mailing Address: 11034 Indian Trail, Dallas TX 75229-3513

Telephone: (972) 247-9657

Email: jeremy@etldallas.com



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Seismic Parameters

Certified Response Spectral Acceleration Factors: (F_p/W_p)

Horizontal (A Flx-H), $g =$ 3.20 (A Rig-H), $g =$ 2.15

Vertical (A Flx-V), $g =$ 1.68 (A Rig-V), $g =$ 0.68

SDS (Design spectral response acceleration at short period, g) = 2.5 @ $z/h = 0$; 2.0 @ $z/h = 1$

H_f (Force amplification height factor) = 1.0 @ $z/h = 0$; 3.5 @ $z/h = 1$

R_u (Structure ductility reduction factor) = 1.0 @ $z/h = 0$; 1.3 @ $z/h = 1$

I_p (Importance factor) = 1.5

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

HCAI Approval (For Office Use Only) - Approval Expires on 09/16/2032

Date: 9/16/2026

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Condition of Approval (if applicable): _____

OSP-0825

BY: Mohammad Karim

DATE: 09/16/2026



TABLE 1		ABB MV SWITCHGEAR SEISMIC CERTIFICATION PRODUCT LINE MATRIX							
¹ Switchgear Identification Section Type		Main Bus Amperage	² NEMA Rating	Main Enclosure Dimensions (in)			Max Height COG (in)	Weight (lbs) max	Representative UUT ⁴
				Width	Depth	Height			
Advance ≤ 15 kV ≤ 63 kA	ADV-TR	1200 - 4000A	1 / 3R	18 / 20	85-120	76-122	42	2300	interpolated
	ADV-TR	1200	1	20	92	95	43	1147	UUT _c -3A
	ADV-AUX	1200 - 4000A	1 / 3R	36	85-120	76-122	54	3500	interpolated
	ADV-AUX	1200A	1	36	92	95	28	2220	UUT _c -3B
	ADV-AUX	1200A	1	36	92	95	27	2420	UUT _c -3C
	ADV-UMC	1200 - 4000A	1 / 3R	36 / 60	85-120	76-122	54	3700	interpolated
	ADV-1H	1200 - 4000A	1 / 3R	36	85-120	76-122	54	4100	interpolated
	ADV-BR/AUX	4000A	1	36	92	95	56	3315	UUT _x -1B
	ADV-BR/AUX	3000A	1	35	92	102	36	3835	UUT _a -1C
	ADV-BR/AUX	2000A	1	36	102	95	41	3590	UUT _y -2B
	ADV-2H	1200 - 4000A	1 / 3R	36	85-120	76-122	53	4400	interpolated
	ADV-2H	4000A	1	36	92	95	46	4000	UUT _x -1A
	ADV-BR/AUX	1200 - 4000A	1 / 3R	36	85-120	76-122	52	4600	interpolated
	ADV-BR/AUX	4000A	1	36	92	95	56	4135	UUT _x -1C
Advance 27 kV ≤ 24 kA	ADV27-TR	1200 - 2000A	1 / 3R	18 / 20	92-120	76-122	52	2300	interpolated
	ADV27-AUX	1200 - 2000A	1 / 3R	36	92-120	76-122	54	4400	interpolated
	ADV27-AUX	2000A	3R	36	110	120	43	3980	UUT _b -2B
	ADV27-UMC	1200 - 2000A	1 / 3R	36 / 60	92-120	76-122	43	5500	interpolated
	ADV27-UMC	1200A	1	60	102	95	43	4990	UUT _y -2A
	ADV27-1H	1200 - 2000A	1 / 3R	36	92-120	76-122	53	4700	interpolated
	ADV27-2H	1200 - 2000A	1 / 3R	36	92-120	76-122	43	5500	interpolated
	ADV27-BR/AUX	1200 - 2000A	1 / 3R	36	92-120	76-122	36	5735	interpolated
	ADV27-BR/AUX	2000A	3R	36	110	120	38	5734	UUT _b -2A

General Notes:

1. All components are manufactured by ABB, Inc. unless noted. The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component with the tested units.
2. NEMA 1 / 3R enclosures are constructed of carbon steel. NEMA 3R is designated as ODNWI by ABB
3. Standalone sections of switchgear are not seismically certified. A minimum of 2 mated sections is required for seismic certification.
4. Subscript indicates the test report in which the units were qualified:
a - 17325 / b - 17452 / c - 17552 / d - 17871 / x - EL10368 / y - 15979

TABLE 1		ABB MV SWITCHGEAR SEISMIC CERTIFICATION PRODUCT LINE MATRIX							
¹ Switchgear Identification Section Type		Main Bus Amperage	² NEMA Rating	Main Enclosure Dimensions (in)			Max Height COG (in)	Weight (lbs) max	Representative UUT ⁴
				Width	Depth	Height			
Safegear ≤ 15 kV ≤ 50 kA	SAFE-TR	1200 - 4000A	1	18 / 20	85-120	118-130	52	2300	interpolated
	SAFE-TR	1200 - 4000A	1	20	95	125	60	1475	UUT _a -1A
	SAFE-1H	1200 - 4000A	1	36	85-120	118-130	52	4600	interpolated
	SAFE-1H	3000A	1	36	120	116	31	5284	UUT _d -4B
	SAFE-AUX	1200 - 4000A	1	36	85-120	118-130	50	5000	interpolated
	SAFE-2H	1200A	1	36	120	116	31	3998	UUT _d -4A
	SAFE-2H	1200 - 4000A	1	36	85-120	118-130	49	5100	interpolated
	SAFE-2H	3000A	1	36	93.5	118	51	4615	UUT _x -2b
	SAFE-BR/AUX	1200 - 4000A	1	36	85-120	118-130	36	5735	interpolated
	SAFE-BR/AUX	3000A	1	36	93.5	118	52	4935	UUT _x -2c
	SAFE-BR/AUX	3000A	1	36	93.5	130	50	4250	UUT _x -2a
	SAFE-BR/AUX	3000A	1	36	93.5	120	49	5215	UUT _a -1B
General Notes: 1. All components are manufactured by ABB, Inc. unless noted. The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component with the tested units. 2. NEMA 1 / 3R enclosures are constructed of carbon steel. 3. Standalone sections of switchgear are not seismically certified. A minimum of 2 mated sections is required for seismic certification. 4. Subscript indicates the test report in which the units were qualified: a - 17325 / b - 17452 / c - 17552 / d - 17871 / x - EL10368 / y - 15979									

TABLE 2	ABB MV SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX			 W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING	
ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT	
AMVAC Circuit Breakers					
MA4H1	ABB Inc.	5/15kV-1200A-25-31.5kA	334	UUT _y -2B	
MA4A1/B1/G1/H1 MB4A1/B1/G1/H1	ABB Inc.	5/15kV-1200A-25-31.5kA	334	interpolated	
MA4C1/P1/J1/Q1 MB4C1/P1/J1/Q1	ABB Inc.	5/15kV-1200A-40kA 27kV-1200A-16/25kA	410	interpolated	
MA4A2/B2/C2/D2/G2 MB4A2/B2/C2/D2/G2 MA4H2/J2/K2/P2/Q2 MB4H2/J2/K2/P2/Q2	ABB Inc.	5/15kV-2000A-25-50kA 27 kV-2000A-16-25 kA	419	interpolated	
MA4H2	ABB Inc.	5/15kV-2000A-25-50kA	419	UUT _x -2B	
MA4H2	ABB Inc.	5/15kV-2000A-25-50kA	419	UUT _x -1A	
MA4Q2	ABB Inc.	27 kV-2000A-16-25 kA	419	UUT _b -2A	
MA4K1 : MB4K1	ABB Inc.	5/15kV-1200A-50kA	430	interpolated	
MA4A3/B3/C3/G3/H3/J3 MB4A3/B3/C3/G3/H3/J3	ABB Inc.	5/15kV-3000A-25-40kA	460	interpolated	
MA4D3/K3 : MB4D3/K3	ABB Inc.	5/15kV-3000A-50kA	480	interpolated	
MA4K3	ABB Inc.	5/15kV-3000A-50kA	480	UUT _a -1B	
ADVAC Circuit Breakers					
AA4A1/B1/G1/H1 AB4A1/B1/G1/H1	ABB Inc.	5/15kV - 1200A - 25-31.5kA	298	extrapolated	
AA4C1/J1 : AB4C1/J1	ABB Inc.	5/15kV - 1200A - 40kA	364	extrapolated	
AA4A2/B2/C2/D2/G2/H2/J2 AB4A2/B2/C2/D2/G2/H2/J2	ABB Inc.	5/15kV - 2000A - 25-40kA	364	extrapolated	
AA4D1/K1 : AB4D1/K1	ABB Inc.	5/15kV - 1200A - 50kA	419	extrapolated	
AA4K1	ABB Inc.	5/15kV - 1200A - 50kA	419	UUT _d -4A	
AA4A3/B3/C3/G3/H3/J3 AB4A3/B3/C3/G3/H3/J3	ABB Inc.	5/15kV - 3000A - 25-40kA	419	extrapolated	
AA4D2/K2 : AB4D2/K2	ABB Inc.	5/15kV - 2000A - 50kA	441	extrapolated	
AA4D2	ABB Inc.	5/15kV - 2000A - 50kA	441	UUT _x -1A/B	
AA4D2	ABB Inc.	5/15kV - 2000A - 50kA	441	UUT _x -2B/C	
AA3U1/U2/M1/M2/V1/V2 AB3U1/U2/M1/M2/V1/V2 BA3T1/T2/M1/M2 BB3T1/T2/M1/M2	ABB Inc.	5/15 kV 1200/2000 A - 63 kA	445	interpolated	
AA4D3/K3 : AB4D3/K3	ABB Inc.	5/15kV - 3000A - 50kA	463	interpolated	
AA4D3	ABB Inc.	5/15kV - 3000A - 50kA	463	UUT _x -1C	
AA3U3/V3/M3 : AB3U3/V3/M3 BA3T3/M3 : BB3T3/M3	ABB Inc.	5/15 kV - 3000 A - 63 kA	489	interpolated	
AA3V3	ABB Inc.	5/15 kV - 3000 A - 63 kA	489	UUT _a -1C	
AA3V3	ABB Inc.	5/15 kV - 3000 A - 63 kA	489	UUT _x -2A	

TABLE 2	ABB MV SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX			 W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING	
ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT	
ADVAC Circuit Breakers - continued					
BA3D1/D2/K2 BB3D1/D2/K1/K2	ABB Inc.	5/15 kV 1200/2000 A - 50 kA	616	interpolated	
BA3U1/U2/V1/V2 BB3U1/U2/V1/V2	ABB Inc.	5/15 kV 1200/2000 A - 63 kA	616	interpolated	
BA3K1	ABB Inc.	5/15kV - 1200A - 50kA	616	UUT _d -4A	
Drawout PT's and Fuses					
92127103	ABB Inc.	19" Tall module (1 set of 3 PTs) 5-15kV	487	UUT _x -1/2C	
925006	ABB Inc.	38" Tall module(1 set of 3 PTs) 27kV	650	interpolated	
92127103	ABB Inc.	38" Tall module (2 sets of 3 PTs) 5-15kV	837	UUT _a -1B	
Drawout CPT and Fuses					
92127104	ABB Inc.	38" w/15kVA, 1ph CPT 5-15 kV	1140	UUT _y -2B	
962777	ABB Inc.	5-15kV Fuse Truck Assembly	220	UUT _c -3B	
Fixed Mounted CPTs					
4106-07	AFP	15.5kV 25kVA, 13800-120/240V, 1PH CPT	450	UUT _c -3B	
460939V	AFP	15kV, 112.5kVA, 3ph, Fixed Mtd. CPT	1450	UUT _b -2A	
Current Transformers					
SAB-1	ABB Inc.	600 volt, indoor, 10kV BIL	35	UUT _x -1B	
SAB-1	ABB Inc.	600 volt, indoor, 10kV BIL	35	UUT _x -2B	
SAB-1	ABB Inc.	600 volt, indoor, 10kV BIL	35	UUT _d -4A	
SAB-1	ABB Inc.	600 volt, indoor, 10kV BIL	35	UUT _d -4B	
SAB-2	ABB Inc.	600 volt, indoor, 10kV BIL	35	UUT _x -1C	
SAB-2	ABB Inc.	600 volt, indoor, 10kV BIL	35	UUT _x -2A	
SAB-1D	ABB Inc.	600 volt, indoor, 10kV BIL	65	interpolated	
SAB-2D	ABB Inc.	600 volt, indoor, 10kV BIL	65	UUT _a -1C	
Fixed Mounted Bus CTs (non-UMC)					
KIR-60	ABB Inc.	5kV, 60kV BIL Indoor, 5-200/300-1200A	35	UUT _b -2A	
KIR-75	ABB Inc.	8.3kV, 75kV BIL Indoor, 5-200/300-1200A	38	interpolated	
KIT-60	ABB Inc.	5kV, 60kV BIL Indoor, 800-4000A	40	UUT _a -1C	
KIT-75	ABB Inc.	8.7kV, 75kV BIL Indoor, 800-4000A	43	interpolated	
KIT-11	ABB Inc.	15kV, 110kV BIL Indoor, 800-4000A	47	UUT _a -1C	
KIT-15	ABB Inc.	25kV, 150kV BIL Indoor, 800-4000A	52	interpolated	
KIR-11	ABB Inc.	15kV, 110kV BIL Indoor, 5-200/300-1200A	61	UUT _b -2A	

TABLE 2	ABB MV SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX			 W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING	
ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT	
Fixed Mounted PTs (non-UMC)					
VIY-60	ABB Inc.	5kV, Indoor, 2400/4160GY	32	UUT _b -2A	
VIZ-11	ABB Inc.	14400-120V, 110kV BIL	67	UUT _x -1C	
VIZ-11	ABB Inc.	14400-120V, 110kV BIL	67	UUT _x -2C	
VIZ-11	ABB Inc.	14400-120V, 110kV BIL	67	UUT _a -1B	
VIZ-11	ABB Inc.	7200-120V, 110kV BIL	67	UUT _d -4B	
VIZ-75	ABB Inc.	8.7kV, 75kV BIL, Indoor, 2400-14400V	69	interpolated	
VIZ-15	ABB Inc.	25kV, 150kV BIL, Indoor, 12000-34500V	120	interpolated	
VIZ-15G	ABB Inc.	27kV class, 12000/20780GY	120	UUT _y -2A	
VIZ-15G	ABB Inc.	27kV class, 12000/20780GY	120	UUT _b -2A	
Bar Mounted Current Transformers					
MCB-5A	Piedmont B&I	5kV, 50-5A, C20	30	UUT _a -1B	
MCB-15A	Piedmont B&I	15kV, 4000A, C200	60	UUT _a -1B	
UFES Primary Switchgng Elements					
QRU-100	ABB Inc.	UFES Electronic Tripping Unit (TU)	10	UUT _a -1C	
U1-175-63	ABB Inc.	PSE, 17.5 kV / 63kA Max, Qty.1	12	UUT _a -1C	
QRU-100	ABB Inc.	UFES Electronic Tripping Unit (TU)	10	UUT _d -4B	
U1-175-63	ABB Inc.	PSE, 17.5 kV / 63kA Max, Qty.1	12	UUT _d -4B	
U1-270-40	ABB Inc.	PSE, 27 kV / 40kA Max, Qty.1	12	UUT _a -1C	
UMC PT's					
VIY-60	ABB Inc.	Set of 3 Sm.Rev PTs	108	UUT _b -2A	
VIZ-15G	ABB Inc.	Set of 3 Lg. Rev PTs	122	UUT _b -2A	
UMC CT's					
CTWH7-150T20012201	ABB Inc.	Set of 3 Lg.Rev CTs	84	UUT _y -2A	
UMC Switch					
VK3B1514U	ABB Inc.	5-15kV VersaRupter Sw w/Mech	75	UUT _b -2B	
VK3A0524N	ABB Inc.	5-15kV VersaRupter Sw w/Mech	210	interpolated	
VK3D2714N	ABB Inc.	27kV VersaRupter Sw w/Mech	235	UUT _y -2A	
Ground CT's					
BYZ-S	ABB Inc.	BYZ-S, Single GCT, 11.3" x 11.0"	52	UUT _a -1C	
BYZ-0	ABB Inc.	BYZ-0, Single GCT, 10.6" x 16.6"	110	interpolated	
BYZ-L	ABB Inc.	BYZ-L, Single GCT, 25.4" x 14.0"	150	UUT _a -1C	

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ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT	
Lightning/Surge Arresters					
XPI-III	Hitachi-ABB	Intermediate Class, set of 3	7	UUT _a -1B	
POLIM-D	Hitachi-ABB	Distribution Class, set of 3, 3 kV	7	interpolated	
POLIM-D	Hitachi-ABB	Distribution Class, set of 3, 27 kV	12	interpolated	
XPI-III	Hitachi-ABB	Intermediate Class, set of 3, 27kV	14	interpolated	
POLIM-S	Hitachi-ABB	Station Class, set of 3, 3kV	17	interpolated	
POLIM-S	Hitachi-ABB	Station Class, set of 3, 27kV	33	interpolated	
XPS	Hitachi-ABB	Station Class, set of 3, 27kV	62	UUT _a -1B	
Voltage Sensors					
KEVA 17.5 B21	ABB Inc.	5/15 KV Class, set of 3	5	UUT _b -2A	
KEVA 24 B21	ABB Inc.	27 kV Class, set of 3	6	UUT _a -1B	
KEVA 17.5 B41	ABB Inc.	5/15 KV Class, set of 3	6	UUT _b -2A	
Current Sensors					
KECA 80	ABB Inc.	KECA 80 C184, Set of 3	2	UUT _a -1B	
AC/DC Panelboards					
AQF2232MB	ABB Inc.	Reliagear RQ125A Lighting Panelboard	64	UUT _b -2A	
P2C42FX250ATS	Siemens	250A Type P2 Panelboard	126	UUT _a -1C	
XT5NU360	ABB	RQ 208/120 VAC, Interior AQF3126JBX	125	UUT _c -3B	
Roof Bushings					
41A03312-6	WARCO INC.	Porcelain, 15kV, 1200A, 110kV BIL	44	UUT _b -2A	
41A6231-20	WARCO INC.	Porcelain, 27kV, 3300A, 150kV BIL	90	UUT _b -2A	
353125-SN	FOSTORIA	Porcelain, 15kV, 1200A, 110kV BIL	45	UUT _b -2A	
Batteries with Racks					
VR-1T4W-Z4	HBL	48VDC, Recombinant, 4 batteries+ rack	292	UUT _c -3C	
12AVR200ET	HBL	125 VDC, VRLA, 10 batteries + rack	1280	UUT _b -2B	
Battery Chargers					
ATEV1130016F2	MDS Power	Type A Tevo Series	211	UUT _b -2B	
ATEV1048075F240	MDS Power	Atevo SERIES Battery charger 48V, 75A.	305	UUT _c -3B	
Surge Capacitors					
2GUS04	Hitachi-ABB	4160/2400, 3-pole	34	UUT _c -3C	
2GUS03	Hitachi-ABB	13,800/7960, 3-pole	59	UUT _c -3C	

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ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT	
Switchgear Internal Bushings					
931682	ABB Inc.	2000A (6) Porcelain Breaker Bushings	20	UUT _b -2A	
931666	ABB Inc.	2000A (1) Porcelain Bus Support	27	UUT _b -2A/B	
963336	ABB Inc.	3000A, 63kA Epoxy Bus Support	82	UUT _a -1B/C	
963336	ABB Inc.	3000A, 63kA Epoxy Bus Support	82	UUT _d -4A/B	
BBCTM-2	ABB Inc.	3000A CT Support Bus Bushings	85	UUT _a -1C	
963242	ABB Inc.	3000A Epoxy Primary Breaker Bushings	115	UUT _a -1B/C	
808281	ABB Inc.	Polyester Bushing, Main Bus 1200A, PT, CPT	3	UUT _d -4B	
963313	ABB Inc.	EPOXY Breaker Primary Bushings, 1200A	42	UUT _d -4A	
963242	ABB Inc.	EPOXY Breaker Primary Bushings, 3000A/4000A	115	UUT _d -4A/4B	
LV Components - Protective Relays					
SEL-751	SEL	Feeder Protection Relay	6	UUT _a -1C	
SEL-750	SEL	Generator Protection Relay	6	UUT _d -4B	
SEL-587Z	SEL	High-Impedance Differential Relay	9	UUT _a -1C	
SEL-3530	SEL	Real- Time Automation Controller (RTAC)	12	UUT _b -2A	
REX 640	ABB	Relion protection and control relays	19	UUT _a -1B	
REX 640	ABB	Relion protection and control relays	19	UUT _d -4A	
SWICOM	ABB	monitoring and diagnostic unit	10	UUT _a -1B	
REF-615	ABB	Feeder Protection	9	UUT _a -1B	
REF-615	ABB	Feeder Protection	9	UUT _d -4A	
BE1-25	Basler	Synch Check Relay	14	UUT _b -2A	
LV Components - Protective Relays					
DECS-250	Basler	Digital Excitation Control System	15	UUT _c -3B	
P143	Schneider	Feeder Management Relay, MiCOM	20	UUT _d -4B	
7SJ81	Siemens	Overcurrent Protection relay - SIPROTEC 5	8	UUT _d -4B	
RET620	ABB	Transformer Protection and Control Relay	10	UUT _d -4B	
LV Components - Metering Devices					
ION9200	Schneider	PowerLogic Energy/Power Quality Meter	3	UUT _a -1C	
CM4000T	Schneider	PowerLogic Circuit Monitor	4	interpolated	
ION7300 series	Schneider	PowerLogic power-monitoring units	4	interpolated	
ION7550 / ION7650	Schneider	Utility networks, mains, or critical loads	4	interpolated	
ION8650	Schneider	PowerLogic Advance Utility Metering	15	UUT _b -2B	
EPM 9700	GE	Multilin Advanced Power Quality Meter	5	UUT _b -2A	
EMS60	TransData	Energy Meter Mark-V series	12	UUT _b -2A	
Nexus 1262/1272	Hubbell	Revenue Energy Meters w/ Power Quality	16	UUT _b -2B	

TABLE 2	ABB MV SWITCHGEAR CERTIFIED SUBCOMPONENT MATRIX			 W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING	
ID/Catalog Number	Manufacturer	Description	Weight (lbs)	Representative UUT	
LV Components - Metering Devices					
PM174	SATEC	Powermeter and Power Quality Analyzer	3	UUT _a -1B	
JSII05R	Ametec	Jemstar II Digital Multifunction Meter	12	UUT _c -3B	
Series 9410	Siemens	Compact Energy & Power Quality Meter	21	UUT _c -3B	
PQM II	GE	Power Quality Meter	5	UUT _d -4A	
LV Components - Ethernet Switches					
GREYHOUND 105/106 Series	Hirschmann	Managed Industrial Ethernet Switch	10	UUT _b -2A	
RUGGEDCOM RSG2100NC	Siemens	Managed Industrial Ethernet Switch	12	UUT _b -2A	
PT-7726-F-48-48	MOXA	PT-7728 Series Ethernet modules	13	UUT _a -1C	
IE-4010	Cisco	Industrial Ethernet Switch 4010	13	UUT _c -3C	
RS416	Ruggedcom	Ethernet Switch RS416	10	UUT _c -3B	
iES28	iS5 Comm	Ethernet Switch	15	UUT _c -3C	
S20	GE	Reason S20 Ethernet Switch	10	UUT _c -3B	
LV Components - IR Window					
FLUKE-CV400	FLUKE	IR Windows Type CV400, Size 4"	1	UUT _a -1C	
IRISS-VPT-75	IRISS	Infrared Inspection Window 75mm (3")	1	UUT _a -1C	
LV Components - Power Supply					
SG4260	Eaton	Substation Gateway Power Supply	15	UUT _c -3C	
BHR65X2-4U2NF	ABSOPULSE	DC-DC Power Converter	15	UUT _c -3B	
SG1K-1SC	FALCON	Uninterruptible Power Supply	33	UUT _c -3C	
LV Components - UPS					
SDU850B	Emerson	Sola HD UPS	12	UUT _a -1B	
ED1000RTXL2U	Minuteman	UPS 1000VA	44	UUT _c -3C	
SMART3000RML2U	Eaton	Tripp Lite UPS	63	UUT _c -3C	
9SX Series	Eaton	Online Double-Conversion UPS	74	UUT _c -3C	
LV Components - Circuit Breakers, Controller, and Contactor					
Tmax XT3	ABB	Molded Case Circuit Breaker	9	UUT _c -3B	
Tmax XT5	ABB	Molded Case Circuit Breaker	9	UUT _b -2A	
TruControl	ABB	TruControl ATS Controller	8	UUT _c -3C	
AF205	ABB	3 pole Contactors	6	UUT _b -2B	
LV Components - MISC					
QK08B-2EM50CH	ZIEHL-ABEGG	Crossflow Fan, 208-250 VAC	12	UUT _d -4B	
MOD600GLECMIR	ABB	RIO600 Communication Module	1	UUT _d -4B	

UUT_x-1A	UNIT UNDER TEST (UUT) SUMMARY SHEET	
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Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: Clark Testing Laboratory, PA
Product Line: Medium Voltage Switchgear	Test Date: Oct. 30 – Nov. 2, 2012
Component: ADV-2H	Report Number: EL:10368
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Double high breaker NEMA 1 carbon steel enclosure with 4000A main bus, ABB MA4H2 AMVAC Circuit Breaker, ABB AA4D2 ADVAC Circuit Breaker.	

UUT PROPERTIES									
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)					
	Width	Depth	Height	FB	SS	V			
4,000	36	92	95	33.0	10.3	10.2			
SEISMIC TEST PARAMETERS – ICC-ES AC 156-24									
CODE	S _{DS} (g)	z / h	H _f	R _μ	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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-1B

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: Clark Testing Laboratory, PA
Product Line: Medium Voltage Switchgear	Test Date: Oct. 30 – Nov. 2, 2012
Component: ADV-BR/AUX	Report Number: EL:10368
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Combined breaker and auxiliary NEMA 1 carbon steel enclosure with 4000A main bus, ABB AA4D2 ADVAC Circuit Breaker, ABB SAB-1 CT.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
3,315	36	92	95	33.0	10.3	10.2

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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-1C	UNIT UNDER TEST (UUT) SUMMARY SHEET	
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Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: Clark Testing Laboratory, PA
Product Line: Medium Voltage Switchgear	Test Date: Oct. 30 – Nov. 2, 2012
Component: ADV-BR/AUX	Report Number: EL:10368
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Combined breaker and auxiliary NEMA 1 carbon steel enclosure with 4000A main bus, 3000A ABB 92127103 PT and Fuse, ABB AA4D3 ADVAC Circuit Breaker, ABB SAB-2 CT, ABB VIZ-11 Fixed PT.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
4,135	36	92	95	33.0	10.3	10.2

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

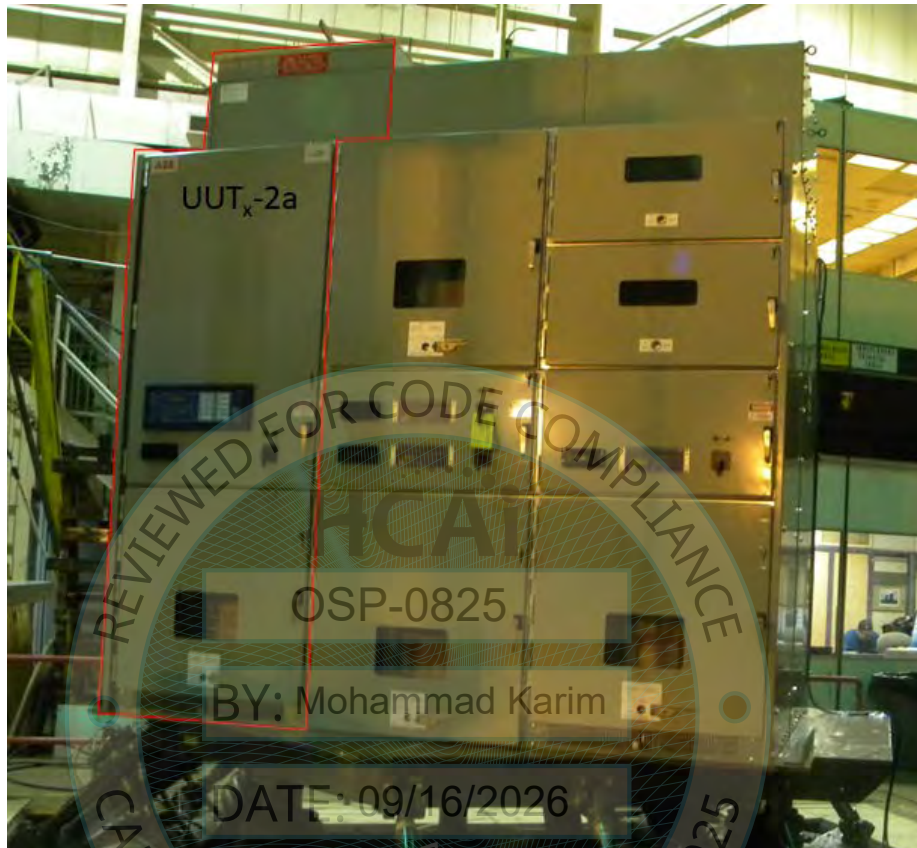
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_x-2A

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: Clark Testing Laboratory, PA
Product Line: Medium Voltage Switchgear	Test Date: Oct. 30 – Nov. 2, 2012
Component: SAFE-BR/AUX	Report Number: EL:10368
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Combined breaker and auxiliary NEMA 1 carbon steel enclosure with 3000A main bus, ABB AA3V3 ADVAC Circuit Breaker, ABB SAB-2 CT.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
4,250	36	93.5	129.5	33.0	14.5	32.0

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

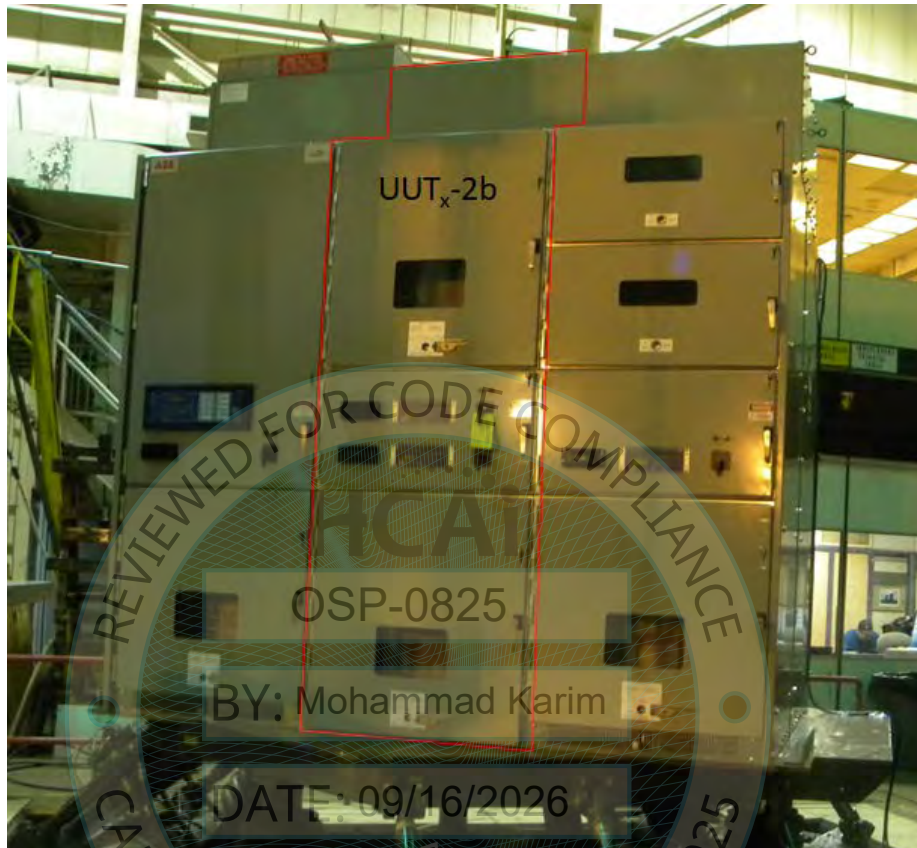
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT_x-2B

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: Clark Testing Laboratory, PA
Product Line: Medium Voltage Switchgear	Test Date: Oct. 30 – Nov. 2, 2012
Component: SAFE-2H	Report Number: EL:10368
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Double high breaker NEMA 1 carbon steel enclosure with 3000A main bus, ABB MA4H2 AMVAC Circuit Breaker, ABB SAB-1 CT, ABB AA4D2 ADVAC Circuit Breaker.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
4,615	36	93.5	118.0	33.0	14.5	32.0

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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-2C

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: Clark Testing Laboratory, PA
Product Line: Medium Voltage Switchgear	Test Date: Oct. 30 – Nov. 2, 2012
Component: SAFE-BR/AUX	Report Number: EL:10368
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Combined breaker and auxiliary NEMA 1 carbon steel enclosure with 3000A main bus, ABB 92127103 PT and Fuse, ABB AA4D2 ADVAC Circuit Breaker, ABB VIZ-11 Fixed PT.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
4,935	36	93.5	118.0	33	14.5	32.0

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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-2A

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage Switchgear	Test Date: December 17, 2020
Component: ADV27-UMC	Report Number: 15979 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: UMC NEMA 1 carbon steel enclosure with 2000A main bus, ABB VIZ-15G Fixed PT, ABB CTWH7-150T20012201 UMC CT, ABB VK3D2714N UMC Switch.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
4,990	60	102	95	30.6	7.0	24.8

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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-2B

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage Switchgear	Test Date: December 17, 2020
Component: ADV-BR/AUX	Report Number: 15979 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Combined breaker and auxiliary NEMA 1 carbon steel enclosure with 2000A main bus, ABB 92127104 CPT and Fuse, ABB MA4H1 AMVAC Circuit Breaker.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
3,590	36	102	95	30.6	7.0	24.8

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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_a-1A

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage Switchgear	Test Date: April 22, 2024
Component: SAFE-TR	Report Number: 17325 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Transition section, NEMA 1 carbon steel enclosure with upper plenum.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,475	20	95	125	6.7	5.5	5.3

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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_a-1B	UNIT UNDER TEST (UUT) SUMMARY SHEET								
Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.									
 									
Manufacturer: ABB Inc.		Test Location: ETL, Dallas Texas							
Product Line: Medium Voltage Switchgear		Test Date: April 22, 2024							
Component: SAFE-BR/AUX		Report Number: 17325 Rev 1							
UUT Function: Control, protection, and isolation of electrical equipment									
UUT Description: Combined breaker and auxiliary NEMA 1 carbon steel enclosure with 3000A main bus, ABB MA4K3 AMVAC Circuit Breaker, ABB 92127103 PT and Fuse, ABB VIZ-11 Fixed PT, Piedmont B&I MCB-5A Bar CT, Piedmont B&I MCB-15A Bar CT, Hitachi-ABB XPI-III Arrester, Hitachi-ABB XPS Arrester, ABB KEVA 24 B21 Voltage Sensor, ABB KECA 80 Current Sensor, ABB REX 640 Relay, ABB SWICOM Relay, ABB REF-615 Relay, SATEC PM174 Metering, Emerson SDU850B UPS, ABB 963336 Bushing, ABB 963242 Bushing.									
UUT PROPERTIES									
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)					
	Width	Depth	Height	FB	SS	V			
5,215	36	93.5	120	6.7	5.5	5.3			
SEISMIC TEST PARAMETERS – ICC-ES AC 156-24									
CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68
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_a-1C	UNIT UNDER TEST (UUT) SUMMARY SHEET								
Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.									
 									
Manufacturer: ABB Inc.				Test Location: ETL, Dallas Texas					
Product Line: Medium Voltage Switchgear				Test Date: April 22, 2024					
Component: ADV-BR/AUX				Report Number: 17325 Rev 1					
UUT Function: Control, protection, and isolation of electrical equipment									
UUT Description: Combined breaker and auxiliary NEMA 1 carbon steel enclosure with 3000A main bus, ABB 963336 Bushing, ABB 963242 Bushing, ABB AA3V3 ADVAC Circuit Breaker, ABB SAB-2D CT, ABB KIT-60 BUS CT, ABB KIT-11 BUS CT, ABB QRU-100 UFES Switch, ABB U1-175-63 UFES Switch, ABB U1-270-40 UFES Switch, ABB BYZ-S Ground CT, ABB BYZ-L Ground CT, Siemens P2C42FX250ATS Panelboard, ABB BBCTM-2 Bushing, SEL SEL-751 Relay, SEL SEL-587Z Relay, Schneider ION9200 Metering, MOXA PT-7726-F-48-48 Ethernet Switch, FLUKE FLUKE-CV400 IR Window, IRISS IRISS-VPT-75 IR Window.									
UUT PROPERTIES									
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)					
	Width	Depth	Height	FB	SS	V			
3,835	35	92	102	6.7	5.5	5.3			
SEISMIC TEST PARAMETERS – ICC-ES AC 156-24									
CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68
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_b-2A	UNIT UNDER TEST (UUT) SUMMARY SHEET								
Mounting Details: Rigid floor mounted with (4) 5/8" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.									
 									
Manufacturer: ABB Inc.				Test Location: ETL, Dallas Texas					
Product Line: Medium Voltage Switchgear				Test Date: August 8, 2024					
Component: ADV27-BR/AUX				Report Number: 17452 Rev 1					
UUT Function: Control, protection, and isolation of electrical equipment									
UUT Description: Combined breaker / auxiliary NEMA 3R ODNWI carbon steel enclosure with 2000A main bus, ABB MA4Q2 AMVAC Circuit Breaker, AFP 460939V CPT, ABB KIR-60 BUS CT, ABB KIR-11 BUS CT, ABB VIY-60 Fixed PT, ABB VIZ-15G Fixed PT, ABB VIY-60 UMC PT, ABB VIZ-15G UMC PT, ABB KEVA 17.5 B21 Voltage Sensor, ABB KEVA 17.5 B41 Voltage Sensor, ABB AQF2232MB Panelboard, WARCO INC. 41A03312-6 Roof Bushing, WARCO INC. 41A6231-20 Roof Bushing, FOSTORIA 353125-SN Roof Bushing, ABB 931682 Bushing, SEL SEL-3530 Relay, Basler BE1-25 Relay, GE EPM 9700 Metering, TransData EMS60 Metering, Hirschmann GREYHOUND 105/106 Series Ethernet Switch, Siemens RUGGEDCOM RSG2100NC Ethernet Switch, ABB Tmax XT5 Circuit Breaker.									
UUT PROPERTIES									
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)					
	Width	Depth	Height	FB	SS	V			
5,734	36	110	120	> 33	3.6	12.9			
SEISMIC TEST PARAMETERS – ICC-ES AC 156-24									
CODE	S_{DS} (g)	z / h	H_f	R_μ	I_p	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68
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_b-2B	UNIT UNDER TEST (UUT) SUMMARY SHEET								
Mounting Details: Rigid floor mounted with (4) 5/8" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.									
 									
Manufacturer: ABB Inc.				Test Location: ETL, Dallas Texas					
Product Line: Medium Voltage Switchgear				Test Date: August 8, 2024					
Component: ADV27-AUX				Report Number: 17452 Rev 1					
UUT Function: Control, protection, and isolation of electrical equipment									
UUT Description: Auxiliary NEMA 3R ODNWI carbon steel enclosure with 2000A main bus, ABB 931666 Bushing, ABB VK3B1514U UMC Switch, HBL 12AVR200ET Battery Rack, MDS Power ATEV1130016F2 Battery Charger, Schneider ION8650 Metering, Hubbell Nexus 1262/1272 Metering, ABB AF205 Contactor.									
UUT PROPERTIES									
Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)					
	Width	Depth	Height	FB	SS	V			
3,980	36	110	120	> 33	3.6	12.9			
SEISMIC TEST PARAMETERS – ICC-ES AC 156-24									
CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68
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_c-3A	UNIT UNDER TEST (UUT) SUMMARY SHEET	
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Mounting Details: Rigid floor mounted with (4) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage Switchgear	Test Date: December 10, 2024
Component: ADV-TR	Report Number: 17552 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Transition NEMA 1 carbon steel enclosure with 1200A main bus.	

UUT PROPERTIES									
Weight (lb)	Dimensions (inches)					Natural Frequency (Hz)			
	Width	Depth	Height			FB	SS	V	
1,147	20	92	95			7.9	11.2	6.9	
SEISMIC TEST PARAMETERS – ICC-ES AC 156-24									
CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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_c-3B

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage Switchgear	Test Date: December 10, 2024
Component: ADV-AUX	Report Number: 17552 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Auxiliary NEMA 1 carbon steel enclosure with 1200A main bus, ABB 962777 CPT and Fuse, AFP 4106-07 CPT, ABB XT5NU360 Panelboard, MDS Power ATEV1048075F240 Battery Charger, Basler DECS-250 Relay, Ametec JSII05R Metering, Siemens Series 9410 Metering, Ruggedcom RS416 Ethernet Switch, GE S20 Ethernet Switch, ABSOPULSE BHR65X2-4U2NF Power Supply, ABB Tmax XT3 Circuit Breaker.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,220	36	92	95	7.9	11.2	6.9

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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_c-3C

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage Switchgear	Test Date: December 10, 2024
Component: ADV-AUX	Report Number: 17552 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Auxiliary NEMA 1 carbon steel enclosure with 1200A main bus, HBL VR-1T4W-Z4 Battery Rack, Hitachi-ABB 2GUS04 Surge Capacitor, Hitachi-ABB 2GUS03 Surge Capacitor, Cisco IE-4010 Ethernet Switch, iS5 Comm iES28 Ethernet Switch, Eaton SG4260 Power Supply, FALCON SG1K-1SC Power Supply, Minuteman ED1000RTXL2U UPS, Eaton SMART3000RMLX2U UPS, Eaton 9SX Series UPS, ABB TruControl Controller.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,420	36	92	95	7.9	11.2	6.9

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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_d-4A

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage 15kV Switchgear	Test Date: December 5, 2025
Component: SAFE-2H	Report Number: 17871 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Double high breaker NEMA 1 carbon steel enclosure with depth extensions, 1200A main bus, ABB Inc. AA4K1 ADVAC Circuit Breaker, ABB Inc. BA3K1 ADVAC Circuit Breaker, ABB Inc. SAB-1 Current Transformer, ABB 963336 / 963313 / 963242 Bushings, ABB REX 640 / REF-615 Relays, GE PQM II Metering.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
3,998	36	120	116	5.50	5.37	5.17

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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_d-4B

UNIT UNDER TEST (UUT) SUMMARY SHEET



Mounting Details: Rigid floor mounted with (6) 1/2" grade 5 bolts with 6x1.5x0.5" seismic washers at each bolt location.



Manufacturer: ABB Inc.	Test Location: ETL, Dallas Texas
Product Line: Medium Voltage 15kV Switchgear	Test Date: December 5, 2025
Component: SAFE-1H	Report Number: 17871 Rev 1
UUT Function: Control, protection, and isolation of electrical equipment	
UUT Description: Combined breaker / auxiliary NEMA 1 carbon steel enclosure with depth extensions, 3000A main bus, ABB SAB-1 Current Transformer, ABB QRU-100 Tripping Unit, ABB U1-175-63 PSE, ABB 963336 / 808281 / 963242 Bushings, ABB VIZ-11 Fixed PT, SEL SEL-750 Relay, Schneider P143 Relay, Siemens 7SJ81 Relay, ABB RET620 Relay, ZIEHL-ABEGG QK08B-2EM50CH Fan, ABB MOD600GLECMIR Communication Module.	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
5,284	36	120	116	5.50	5.37	5.17

SEISMIC TEST PARAMETERS – ICC-ES AC 156-24

CODE	S _{DS} (g)	z / h	H _f	R _μ	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2025	2.0	1.0	3.5	1.30	1.5	3.20	2.15	-	-
	2.5	0	1.0	1.00	1.5	-	-	1.68	0.68

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.