



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0040

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: ABB Inc.

Manufacturer's Technical Representative: Cameron Molloy

Mailing Address: 41 Woodford Ave., Plainville, CT 06062-2372

Telephone: 860-747-7813

Email: Cameron.molloy@us.abb.com

Product Information

Product Name: A-Series Lighting Panel & Spectra Power Panel

Product Type: Panelboards

Product Model Number: Varies (See attachment)

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

General Description: A-Series Lighting Panel & Spectra Power Panel (125A-1200A). Modifications made to test units to address anomalies observed during testing shall be incorporated into production units.

Mounting Description: Wall mounted - rigid.

Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

Contact Person: Katie Braman

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

Telephone: 844-878-0200

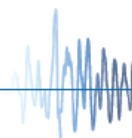
Email: kbraman@structint.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: Katie M. Braman Date: 12/15/2020

Title: Program Manager Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

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





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

Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

Name: Andrew M. Coughlin, SE California License Number: S6082

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

Telephone: 844-878-0200 Email: acoughlin@structint.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): _____

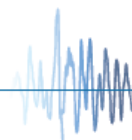
Testing Laboratory

Company Name: Clark Testing Laboratory

Contact Name: Devon Lohr

Mailing Address: 1801 Route 51, Jefferson Hills, PA 15025

Telephone: 412.387.1026 Email: dlohr@clarktesting.com





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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 ($z/h = 1$)

S_{DS} (Design spectral response acceleration at short period, g) = 2.00

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) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See Attachment

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

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, 2015: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☐ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☒ Other(s) (Please Specify): Product Matrices

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

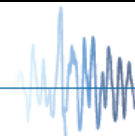
Signature: Timothy J. Piland Date: April 9, 2021

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.00 z/h = 1

Condition of Approval (if applicable): _____

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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1900458-CR-001-R3



Manufacturer: ABB						TABLE 1		
Model Line: A-Series Lighting Panel & Spectra Power Panel								
Certified Product Construction Summary: NEMA 1 and NEMA 2 are indoor enclosures constructed of cold-formed carbon steel. NEMA 3R,4,12 are outdoor enclosures constructed of cold-formed carbon steel. NEMA 4x are outdoor enclosures constructed of stainless steel. Indoor enclosures are mounted with bolts through the interior of the cabinet, outdoor cabinets have exterior tabs that are used for mounting.								
Certified Options Summary: See Product Matrices and UUT Summaries								
Mounting Configuration: Wall mounted - rigid Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.								
Building Code: CBC 2016			Seismic Certification Limits: $S_{DS}= 2.0g$ $z/h=1.0$ $I_p= 1.5$					
Model Line ^{1,2}	Model	NEMA Type	Dimensions (in)			Weight (lb)	Notes	UUT
			Width	Depth	Height			
Lighting Panels - ALxxx*, AQxxx*, AExxx*, ADxxx*, ASxxx*, RLxxx*, RQxxx*, RExxx*, RDxxx*, RSxxx*	Axxxxx, Rxxxxx	NEMA 1,2,3R,4,4x,12	27-266	Ampacity 100A-225A	Extrap.
	AQL3422ATX	NEMA 1	10	5	32	27	225A	7
	AQF3126MBX	NEMA 4X	8	20	32	78	125A	23
	ASF3121KBX	NEMA 4X	20	8	38	110	225A	21
	ASF3368KBX	NEMA 1	20	8	56	130	800A	3
	ASF3122GT	NEMA 4	20	6	44	97	225A	4
	ASF3122GTX	NEMA 4	20	6	56	188	225A	6
	AQC3422MTX	NEMA 1	9	6	77	100	225A	10
	AQF3302MTSX	NEMA 1	20	6	77	156	225A	12
	ADF3842MTX	NEMA 1	20	6	77	266	225A	8
	ASF3122GB	NEMA 1	20	6	44	85	225A	1
	Axxxxx, Rxxxxx	NEMA 1,2,3R,4,4x,12	30	8	89	27-368	Ampacity 100A-800A	Interp.
	ASF3124DTX	NEMA 1	30	8	89	310	800A	2
	ASF3482KBX	NEMA 2	20	6	89	287	600A	20
	ASF3308KBX	NEMA 3R	30	8	89	306	800A	19
	ASF3248BX	NEMA 4X	30	8	89	316	800A	22
Notes: ¹ Identical NEMA cabinets are used by Spectra and Lighting Panels. ² Axxxx denotes GE branding, Rxxxx is an identical product but with ABB branding.								

1900458-CR-001-R3

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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900458-CR-001-R1



Manufacturer: ABB		Table Description: BUS			TABLE 2
Model Line: A-Series Lighting Panel & Spectra Power Panel					
Building Code: CBC 2016		Seismic Certification Limits: $S_{DS} = 2.0 g$ $z/h = 1.0$ $I_p = 1.5$			
Component Type	Manufacturer ¹	Model	Description	Notes	UUT
BUS Aluminum	ABB/GE	Al-0125	Aluminum, 2 lbs.	125A	23
		Al-0600	Aluminum, 11 lbs.	600A	2,3,6
		Al-0750	Aluminum, 80 lbs.	750A	1,4,14
		Al-HeatRated	Aluminum, 100 lbs.	Heat Rated	16
		Al-XXX	Aluminum, 0.5-100lbs.	125-800A	Interp.
		Al-0800	Aluminum, 50 lbs.	800A	20
BUS Copper		Cu-0125	Copper, 3 lbs.	125A	21
		Cu-Heat Rated	Copper, 3 lbs.	Heat Rated	1,4
		Cu-0800	Copper, 50 lbs.	800A	2,3,6,19 22
		Cu-XXX	Copper, 3-150 lbs.	125A-1000A	Interp.
		Cu-1000	Copper, 3-150 lbs.	1000A	7,8,10,12, 13,15,17, 18

Notes:
¹ GE or ABB may be branded on product, products are identical.

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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900458-CR-001-R1



Manufacturer: ABB		Table Description: Circuit Breakers			TABLE 3
Model Line: EntellEon					
Building Code: CBC 2019, IBC 2018		Seismic Certification Limits: S_{DS} = 2.0 g z/h = 1.0 I_p = 1.5			
Component Type	Manufacturer ¹	Model	Description	Notes	UUT
Residential Breaker Q-Line	GE/ABB	THQL1115/	Plastic molded case, 0.3 lbs.	15A	7
		THQL*/, THQB*/, TQD*/	Plastic molded case, 1-4lbs.	15A-225A	Interp.
		THQB32100/	Plastic molded case, 1 lbs.	100A	10,12,18
		TQD32200WL/	Plastic molded case, 4 lbs.	200A	7
		TQD32225WL/	Plastic molded case, 4 lbs.	225A	18
Core Line Breaker-STEY	GE/ABB	TEYD3015B/	Plastic molded case, 2 lbs.	15A	1,2,3,4,6,18
		TEYD3125B/	Plastic molded case, 2 lbs.	125A	1,2,3,4,6,18
		TEYL1015B	Plastic molded case		19,20,22
		TEYL3125B	Plastic molded case		19,20,22
		TE*/, TF*/, TJ*/	Plastic molded case 1-17 lbs.	125A-600A	Interp.
		TJJ426D600WL	Plastic molded case, 17 lbs.	600A	Interp.
		TJJ436600WL	Plastic molded case, 17 lbs.	600A	2,22
Spectra Breaker	GE/ABB	SEDA36AT0030	Plastic molded case, 5 lbs.	30A	16
		SEHA34A0150	Plastic molded case, 5 lbs.	150A	8
		SEDA34A0150	Plastic molded case, 5 lbs.	150A	8
		SEDA36AT0150	Plastic molded case, 5 lbs.	150A	16
		SE*/, SF*/, SG*/, SK*/	Plastic molded case, 5-39 lbs.	30A -1200A	Interp.
		SFHA36AT0250	Plastic molded case, 8 lbs.	250A x 14 in test unit	18
		SGHA36AT0400	Plastic molded case, 11 lbs.	400A x4 in test unit	15
Notes:					
¹ GE or ABB may be branded on product, products are identical.					

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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900458-CR-001-R1



Manufacturer: ABB		Table Description: Circuit Breakers			TABLE 3
Model Line: EntellEon					
Building Code: CBC 2019, IBC 2018 Seismic Certification Limits: S_{DS} = 2.0 g z/h = 1.0 I_p = 1.5					
Component Type	Manufacturer ¹	Model	Description	Notes	UUT
Spectra Breaker	GE/ABB	SKHA36AT0800	Plastic molded case, 39 lbs.	800A	2,6,22
		SKLA36AT1200	Plastic molded case, 39 lbs.	1200A x2 in test unit - horizontal	17
Record Plus	GE/ABB	FBV36TE015R2	Plastic molded case, 3 lbs.	15A	14
		FBV36TE100R2	Plastic molded case, 3 lbs.	100A	14
		FBV36TE100R	Plastic molded case, 3 lbs.	100A	8
		FB*/, FE*/, FG*/	Plastic molded case, 3-15 lbs.	15A - 600A	Interp.
		FEN34AA0250R	Plastic molded case, 3 lbs.	250A	4
		FGN36AA0250R0	Plastic molded case, 15 lbs.	250A	14
		FGN36KA0600	Plastic molded case, 15 lbs.	600A	18
		FGN36AA0600R0	Plastic molded case, 15 lbs.	600A	3
		FEB34AAA0225R	Plastic molded case, 15 lbs.	225A	1
XT Breakers	GE/ABB	XT1NU3015AFD000XXX	Plastic molded case, 2 lbs.		23
		XT1NU3125AFD000XXX	Plastic molded case, 2 lbs.		21
		XT4NU3250AFL000XXX	Plastic molded case, 4 lbs.		20
		XT5SU3400BFBK000XXX	Plastic molded case, 10 lbs.		20
		XT5SU3600BFBK000XXX	Plastic molded case, 10 lbs.		19
		XT1*/XT4*/XT5*/XT6*	Plastic molded case, 2-19 lbs.		Interp.
		XT6NU3800BFBK000XXX	Plastic molded case, 19 lbs.		19

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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900458-CR-001-R3



Manufacturer: ABB		Table Description: Power Management System & Accessories			TABLE 4
Model Line: A-Series Lighting Panel & Spectra Power Panel					
Building Code: CBC 2016		Seismic Certification Limits: $S_{DS} = 2.0 g$ $z/h = 1.0$ $I_p = 1.5$			
Component Type	Manufacturer	Model	Description	Notes	UUT
Lighting Panel & Spectra Main Metering/ Electronic Metering Kits	GE/ABB	EPM2200/ PL2200B1X	Plastic molded case, 10 lbs.		14
		2*, 3*, 5*, 6*, 7*, 9*, PL pre-fix*, PQM*, T20CA*, EPM*	Plastic molded case, 10 lbs.		Interp.
		PQMII-T20-CA	Plastic molded case, 10 lbs.		16
		EPM 4500/PL450027734C08LMOD	Plastic molded case, 15 lbs.		15
		AMP1B1	Plastic molded case		20
		AMP1H5	Plastic molded case		19
	Veris	ASPMETERA84AE	Plastic molded case		19
	Trendpoint	PREMQENKH	Plastic molded case		22
Surge Protective Devices-SPD/ Transient Voltage Suppressor-TVSS	GE/ABB	TPME277Y06PP	Carbon steel and plastic, 8 lbs.		15
		TPHE*, TPME*, ATME*, ATHE*, THE*, TPHE*, TME*, TPLE*, TLE*, ATLE*	Carbon steel and plastic, 8-30 lbs.		Interp.
		TPHE120S30PP	Carbon steel and plastic, 30lbs.		15
Process Control Unit (PCU) - Meter Head 1 and 2	GE/ABB	APCU151FNDPDHH	Carbon steel, meter head 2, 40 lbs.	Two PCUs tested; one mounted on meter head 1 and one mounted on meter head 2	16

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UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer: ABB						
Model Line: A-Series Lighting Panel & Spectra Power Panel						
UUT	Unit Description	Report Number	Testing Laboratory	S _{DS}	z/h	I _p
1	225A AS Panel (ASF3122GB)	10276	Clark Testing	2.0	1	1.5
2	800A AS Panel (ASF3368KBX)	10276	Clark Testing	2.0	1	1.5
3	800A AS Panel (ASF3124DTX)	10276	Clark Testing	2.0	1	1.5
4	225A AS Panel (ASF3122GT)	10276	Clark Testing	2.0	1	1.5
5	NOT USED					
6	800A AS Panel (ASF3122GTX)	10276	Clark Testing	2.0	1	1.5
7	225A AQ Panel (AQL3422ATX AXB4M9)	52868-1	NTS-Huntsville	2.0	1	1.5
8	225A AD Panel (ADF3842MTX AXB4MR)	52868-1	NTS-Huntsville	2.0	1	1.5
9	NOT USED					
10	225A AQC Panel (AQC3422MTX AXB4)	52868-1	NTS-Huntsville	2.0	1	1.5
11	NOT USED					
12	225A AQ Panel (AQF3302MTSX AXB7)	52868-1	NTS-Huntsville	2.0	1	1.5
13	Spectra Fusible Switch Power Panel	46922-1 (UUT E1)	NTS-Huntsville	2.0	1	1.5
14	250A Spectra Power Panel	2346B rev.2 (UUT1)	Clark Testing	2.5	1	1.5
15	1200A Spectra Power Panel	2346B rev.2 (UUT2)	Clark Testing	2.5	1	1.5
16	250A Spectra Power Panel	2346B rev.2 (UUT3)	Clark Testing	2.5	1	1.5
Notes:						

1900458-CR-001-R3



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UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 1
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	225A AS Panel (ASF3122GB)	
Serial Number:		N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 1

Options/Subcomponent Summary:
750A PSI Aluminum Bus, Heat-Rated Unplated Copper Bus, STEY Core Series Breaker 15A, 125A (PN: TEYD3015B, TEYD3125B), FE Record Plus Series Breaker 225A (PN: FEN34AA0225R)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
85	6	20	44	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 5/16"-18 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 2
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	800A AS Panel (ASF3368KBX)	
		Serial Number: N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 1

Options/Subcomponent Summary:
600A PSI Aluminum Bus, 800 PSI Copper Bus, STEY Core Series Breaker 15A, 125A (PN: TEYD3015B, TEYD3125B), SK Spectra Series Breaker 800A (PN:?), TJ Core Series Breaker 600A (PN: TJJ436600WL)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
310	8	30	89	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 3/8" -16 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 3
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	800A AS Panel (ASF3124DTX)	
		Serial Number: N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel-NEMA 1

Options/Subcomponent Summary:
600A PSI Aluminum Bus, 800 PSI Copper Bus (PN:TEYD3015B), 800 PSI Copper Bus (PN: , TEYD3125B), SE Spectra Series Breaker 800A (PN: SKPA36AT0800), FG Record Plus Series Breaker 600A (PN: FGN36AA0600R0)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back		Side-Side		Vertical		
130	8	20	56	N/A		N/A		N/A		
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 5/16"-18 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 4
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	225A AS Panel (ASF3122GT)	
		Serial Number: N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 4

Options/Subcomponent Summary:
750A PSI Aluminum Bus, Heat-Rated Unplated Copper Bus, STEY Core Series Breaker 15A, 125A (FEN34AA0250R)

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
97	6	20	44	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information								
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 2016	ICC-ES AC156 (2010)	2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 5/16" -18 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3




Manufacturer:	ABB	UUT 6
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	800A AS Panel (ASF3122GTX)	
		Serial Number: N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 4

Options/Subcomponent Summary:
600A PSI Aluminum Bus, 800 PSI Copper Bus, STEY Core Series Breaker 15A, 125A (PN: TEYD3015B, TEYD3125B), SK Spectra Series Breaker 800A (PN: SKLA36AT0800), FG Record Plus Series Breaker 600A (PN: FGN36AA0600R0)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
188	6	20	56	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 3/8"-16 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



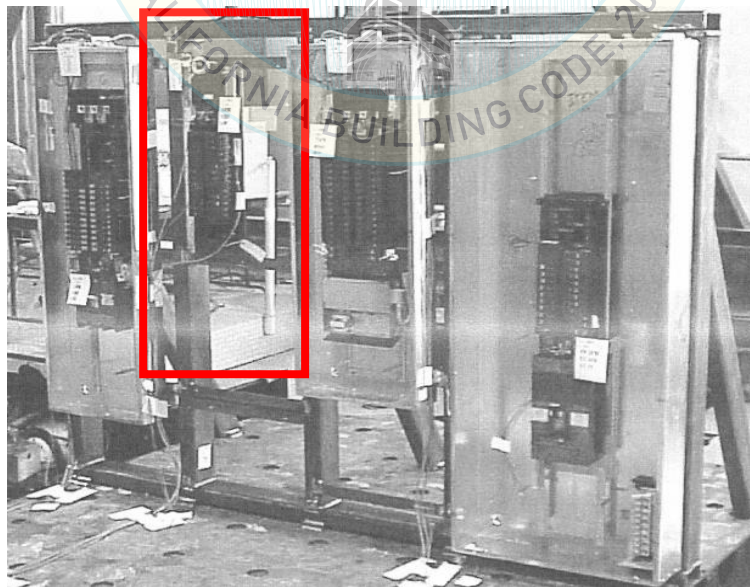
Manufacturer:	ABB	UUT 7
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	225A AQ Panel (AQL3422ATX AXB4M9)	
Serial Number:		N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 1

Options/Subcomponent Summary:
1000A PSI Copper Bus, THQL Residential Circuit Breaker 15A (PN: THQL1115), TQD Residential Series Breaker 200A (PN: TQD32200WL)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
27	5	10	32	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2004)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid four (4) 1/4"-20 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 8
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	225A AD Panel (ADF3842MTX AXB4MR)	
Serial Number:		N/A

Product Construction Summary:

16 ga Cold-Formed Carbon Steel - NEMA 1

Options/Subcomponent Summary:

1000A PSI Copper Bus, SE Spectra Series Breaker 150A (PN: SEDA34A0150), SE Spectra Series Breaker 150A (PN: SEHA34A0150), FB Record Plus Series Breaker 100A (PN: FBV36TE100R)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
266	6	20	77	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

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 2016	ICC-ES AC156 (2004)	2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 1/4"-20 Grade 5 bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Contents were included in testing per operating conditions.

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UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3




Manufacturer:	ABB	UUT 10
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	225A AQC Panel (AQC3422MTX AXB4)	
Serial Number:		N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 1

Options/Subcomponent Summary:
1000A PSI Copper Bus, THQB Residential Series Breaker 100A (PN: THQB32100)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
100	6	9	77	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2004)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 1/4"-20 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



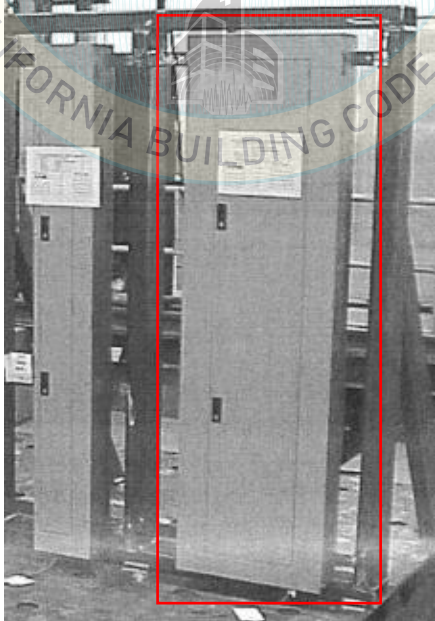
Manufacturer:	ABB	UUT 12
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	225A AQ Panel (AQF3302MTSX AXB7)	
		Serial Number: N/A

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 1

Options/Subcomponent Summary:
1000A PSI Copper Bus, 160MC Contactor (PN: CR160MC), THQB Residential Series Breaker 100A (PN: THQB32100)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back		Side-Side		Vertical		
156	6	20	77	N/A		N/A		N/A		
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2004)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 1/4"-20 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



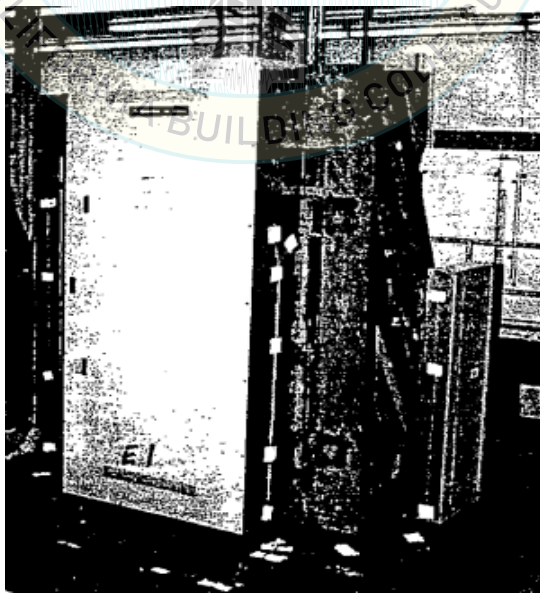
Manufacturer:	ABB	UUT 13
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	Spectra Fusible Switch Power Panel (APB4308 APF9643)	
Serial Number:	N/A	

Product Construction Summary:
16 ga Cold-Formed Carbon Steel - NEMA 1

Options/Subcomponent Summary:
1000A PSI Copper Bus, Fusible Switch (PN: ADS36120LB)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
300	16	44	96	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.33	0.53

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 3/8"-16 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 14
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	250A Spectra Power Panel	
		Serial Number: APFT6518NSFP

Product Construction Summary:
Interior APNB1802FA; Box APBS276518T
NEMA 1 Cold-formed carbon steel

Options/Subcomponent Summary:
750A PSI Aluminum Bus, FB Breaker 15A x 1 (PN: FBV36TE015R2), FB Breaker 100A x 1 (PN: FBV36TE100R2), Record Plus FG 250A x 1 (PN: FGN36AA0250R0), Power Electronic Meter Kit - EPM2200 (PN: EPM2200/ PL2200B1X)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
258	11.5	27	65	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.5	1.0	1.5	4.00	3.00	1.67	0.67

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 3/8"-16 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 15
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	1200A Spectra Power Panel	
		Serial Number: APF9643WDH

Product Construction Summary:
NEMA 1- Cold-Formed Carbon Steel

Options/Subcomponent Summary:
Interior: APNB4312FB4TA; Box: APB4496; Front: APFT9643W, 1000A PSI Copper Bus, Spectra G Breaker 400A , x 4 (PN: SGHA36AT0400), Surge Protective Device (SPD) or Transient Voltage Suppressor TVSS (PN: TPHE120S30PP), Surge Protective Device (SPD) or Transient Voltage Suppressor TVSS (PN: TPME277Y06PP)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
800	16.25	44	96	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.5	1.0	1.5	4.00	3.00	1.67	0.67

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 3/8"-16 Grade 5 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 16
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	250A Spectra Power Panel	
		Serial Number: APN2302FH1A

Product Construction Summary:

NEMA 4/4X-Stainless steel

Options/Subcomponent Summary:

Interior: APN2302FH1A, Box: APBR366523T, AI Bus Heat Rated, Process Control Unit PCU with PQM Meter - Meter Head 1(PN: APCU151FNPDH), Process Control Unit PCU with PQM Meter - Meter Head 2 (PN: APCU151FNPDH), Spectra SE 15A (PN: SEDA36AT0030), Spectra SE 150A (PN: SEHA36AT0150), Power Electronic Meter Kit - PQM II Meter (PN: PQMII-T20-CA)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
452	16.6	36.2	65	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

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 2016	ICC-ES AC156 (2010)	2.5	1.0	1.5	4.00	3.00	1.67	0.67

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 1/2" -13 Grade 5 bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Contents were included in testing per operating conditions.

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UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 17
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	1200A GenTower Outdoor Spectra Power Panel	
Serial Number:	GQCP208120TRR	

Product Construction Summary:
NEMA 3R Cold-formed carbon steel

Options/Subcomponent Summary:
1000A PSI Copper Bus, Spectra SK 1200A x 1 (PN: SKLA36AT1200), Spectra SK 1200A x 1 (PN: SKLA36AT1200), Generator Connection Receptacles x 12 (4 per phase) (PN: HBLFRSBN)

UUT Properties									
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)					
	Depth	Width	Height	Front-Back	Side-Side	Vertical			
683	20	44	75	N/A	N/A	N/A			
UUT Highest Passed Seismic Run Information									
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 2016	ICC-ES AC156 (2010)	2.5	1.0	1.5	4.00	3.00	1.67	0.67	

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 1/2"-13 Grade 8 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



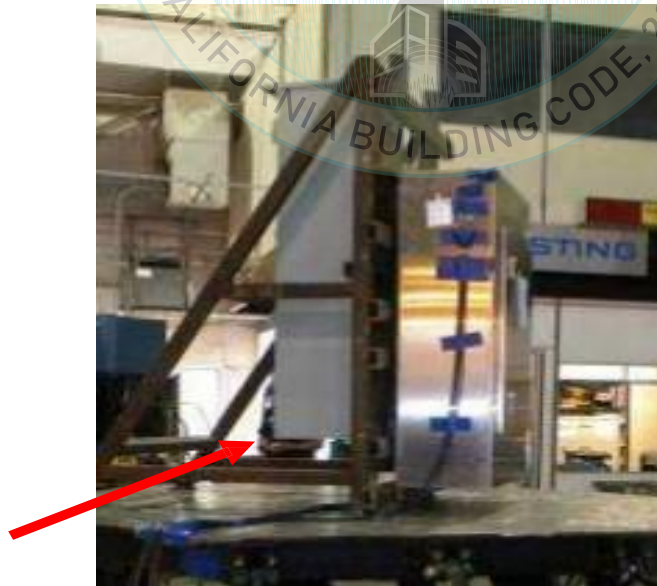
Manufacturer:	ABB	UUT 18
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	1200A Spectra Outdoor Power Panel	
		Serial Number: APNB2312FB4A

Product Construction Summary:
NEMA 3R Cold- formed carbon steel

Options/Subcomponent Summary:
Panel Interior (PN: APNB3312FB4A), Panel Box (PN: APBR318933B), 1000A PSI Copper Bus, TEY 15A (PN: TEY3015B), TEY 100A (PN: TEY3100), TQD 100A (PN: TQD32100WL), Record Plus FG 600A (PN: Record Plus FG 600A), Spectra F 250A x 14 (PN: SFHA36AT0250)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
529	14.6	31.2	89.7	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.5	1.0	1.5	4.00	3.00	1.67	0.67

Test Mounting Details:



UUT is wall mounted-rigid with four (4) 1/2"-Grade 8 bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 19
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	AS Panelboard	
		Serial Number: N/A

Product Construction Summary:
NEMA 3R Cold-formed carbon steel

Options/Subcomponent Summary:
Copper Bus 800A (PN:Cu-0800), Breaker XT6 (PN:XT6NU3800BFK000XXX), Breaker XT5 (PN:XT5SU3600BFK000XXX), Breaker STEY (PN:TEYL3125B), Breaker STEY (PN:TEYL1015B) Metering AMP1 CT (PN:3P56-SD-12871EC), Metering AMP1 (PN: AMP1H5), Veris meter (PN:ASPMETERA84AE)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back		Side-Side		Vertical		
306	8	30	89	N/A		N/A		N/A		
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.67	0.67
				2.5	0.0					

Test Mounting Details:



UUT wall mounted-rigid with four (4) 3/8"-16 bolts washers and lock washers. Bolts were torqued to 30 ft./lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 20
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	AS Panel	
		Serial Number: N/A

Product Construction Summary:
NEMA 2 Cold-formed carbon steel

Options/Subcomponent Summary:
Aluminum Bus 800A (PN:AL-0800), Breaker XT4 (PN:XT4NU3250AFL000XXX), Breaker STEY (PN:), Breaker XT5 (PN:XT5SU3400BFL000XXX, Breaker STEY (PN:TEYD3125B), Breaker STEY (PN: TEYD3125B), Meter AMP1 (PN: AMP1B1), Meter AMP1 CT (PN: E682D401V3),

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
287	6	20	89	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.67	0.67
				2.5	0.0					

Test Mounting Details:



UUT wall mounted-rigid with four (4) 5/16"-18 bolts washers and lock washers. Bolts were torqued to 18 ft./lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 21
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	AS Panelboard	
		Serial Number: N/A

Product Construction Summary:

NEMA 4X stainless steel

Options/Subcomponent Summary:

Copper Bus 125A (PN: Cu-0125), THQB Breaker (PN:THQB32100), THQB Breaker (PN: THQB2110), A2 Breaker (PN: A2A225TW), Breaker XT1 (PN: XT1NU3125AFD000XXX)

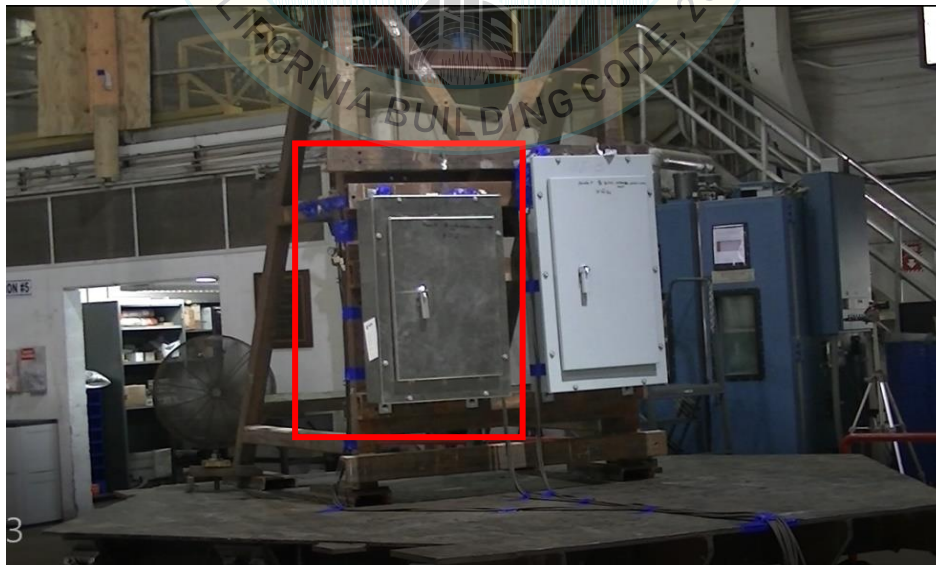
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
110	8	20	38	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

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 2016	ICC-ES AC156 (2010)	2.0 2.5	1.0 0.0	1.5	3.20	2.40	1.67	0.67

Test Mounting Details:



UUT wall mounted-rigid with four (4) 3/8"-16 bolts washers and lock washers. Bolts were torqued to 31 ft./lbs. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1900458-CR-001-R3



Manufacturer:	ABB	UUT 22
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	AS Panelboard	
Serial Number:		N/A

Product Construction Summary:

NEMA 4X stainless steel

Options/Subcomponent Summary:

Copper Bus 800A (PN: Cu-0800), SK Breaker (PN: SKHA36AT0800), TJJ Breaker (PN: TJJ436400WL), STEY Breaker (PN:TEYD3125B), STEY Breaker (PN:TEYD1015B), Trendpoint meter (PN: PREMQUENKH), Trendpoint CT (PN:CTTG-125), Trendpoint CT (PN: PREMQSPT751N)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
316	8	30	89	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

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 2016	ICC-ES AC156 (2010)	2.0 2.5	1.0 0.0	1.5	3.20	2.40	1.67	0.67

Test Mounting Details:



UUT wall mounted-rigid with four (4) 3/8"-16 bolts washers and lock washers. Bolts were torqued to 30ft./lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

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UNIT UNDER TEST (UUT) SUMMARY SHEET

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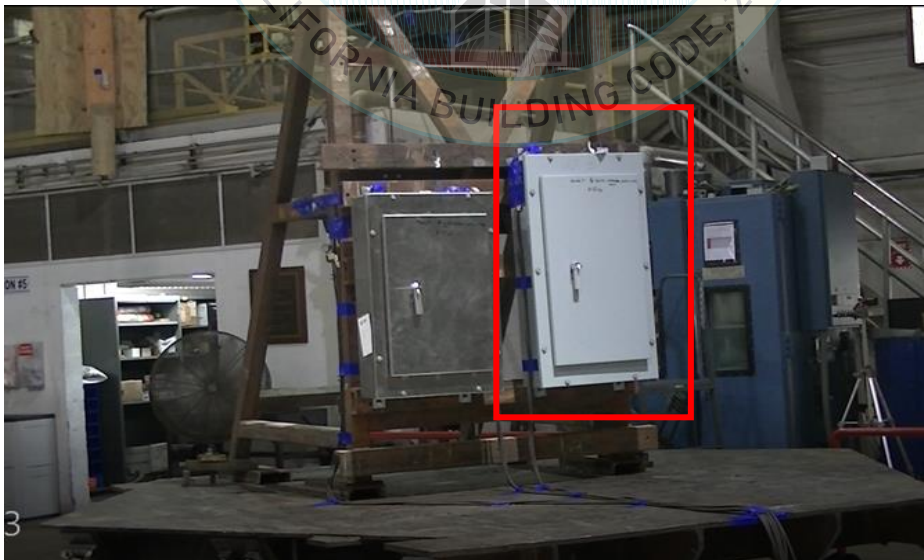
Manufacturer:	ABB	UUT 23
Model Line:	A-Series Lighting Panel & Spectra Power Panel	
Model Number:	AQ Panelboard	
Serial Number:		N/A

Product Construction Summary:
NEMA 2 Cold-formed carbon steel

Options/Subcomponent Summary:
AL Bus 125A (PN:AL-0125), XT1 Breaker (PN: XT1NU3015AFD000XXX), A2 Breaker (PN: A2A125TW), THQB Breaker (PN: THQB32100), THQB Breaker(PN:THQB2110)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
78	8	20	32	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
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 2016		ICC-ES AC156 (2010)		2.0	1.0	1.5	3.20	2.40	1.67	0.67
				2.5	0.0					

Test Mounting Details:



UUT wall mounted-rigid with four (4) 3/8\"-16 bolts washers and lock washers. Bolts were torqued to 31 ft./lbs.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.