



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC  
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0304

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: ABB Inc.

Manufacturer's Technical Representative: Justin Dubrosky

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

Telephone: 860.747.7807

Email: justin.dubrosky@us.abb.com

Product Information

Product Name: ReliaGear neXT and EntellEon

Product Type: Panelboards

Product Model Number: Varies (See attachment)

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

General Description: 250A-1200A ReliaGear neXT and EntellEon Panelboards

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 Braman Date: 12/19/2019

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"

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY  
OSH-FD-759 (REV 12/16/15)

OSHPD

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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): \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

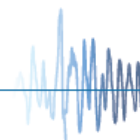
**Testing Laboratory**

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 ( $F_p/W_p$ ) = 1.13 ( $S_{DS}=2.50$ ,  $z/h=0$ ), 1.5 ( $S_{DS}=2.00$ ,  $z/h=1$ )

$S_{DS}$  (Design spectral response acceleration at short period, g) = 2.00 ( $z/h = 1.0$ ), 2.50 ( $z/h = 0.0$ )

$a_p$  (In-structure equipment or component amplification factor) = 2.5

$R_p$  (Equipment or component response modification factor) = 6.0

$\Omega_0$  (System overstrength factor) = 2.0

$I_p$  (Importance factor) = 1.5

$z/h$  (Height factor ratio) = 1.0 ( $S_{DS}=2.00$ ), 0 ( $S_{DS}=2.50$ )

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) = \_\_\_\_\_

$\Omega_0$  (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: William Staehlin

Date: April 8, 2021

Print Name: William Staehlin

Title: Senior Structural Engineer

Special Seismic Certification Valid Up to :  $S_{DS}$  (g) = See Above

$z/h$  = See Above

Condition of Approval (if applicable): \_\_\_\_\_

# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

1900462-CR-001 R0



<b>Manufacturer:</b> ABB						<b>TABLE 1</b>	
<b>Model Line:</b> ReliaGear neXT & EntellEon							
<b>Certified Product Construction Summary:</b> Enclosures: NEMA1 - Cold formed carbon steel, NEMA 3 - Cold formed carbon steel, NEMA 4X - Stainless Steel							
<b>Certified Options Summary:</b>							
<b>Mounting Configuration:</b> Wall mounted - rigid Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
<b>Building Code: CBC 2019</b>		<b>Seismic Certification Limits:</b>		$S_{DS}= 2.0 g \quad z/h=1.0$ $S_{DS}= 2.5 g \quad z/h=0.0$		$I_p= 1.5$	
Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
ReliaGear neXT & EntellEon (250 -1200 amps)	ENC6030A & ENT1602NN3H2	15	30	60	250	Indoor <sup>1,3</sup> - NEMA 1	1
	ENC* & ENT* & IN* & ER*	...	...	...	...		Interp
	ENC9645A & ENT4012BL3H2	10.5	45	96	896		2
	ENC* <sup>4</sup> & ENT* <sup>4</sup> & IN* <sup>4</sup> & ER* <sup>4</sup>	...	...	...	...		Interp
	ER9645A <sup>4</sup> & IN4012BL4H1 <sup>4</sup>	16	45	96	970		6
	ENC7230X & ENT1604BL3H2	13	32	72	436	Outdoor <sup>2,3</sup> - NEMA 4X	3
	ENC* & ENT* & IN* & ER*	...	...	...	...	NEMA 4X and NEMA 3R	Interp
	ENC9645R & ENT3212BL3H2	12.5	47	96	988	Outdoor <sup>2,3</sup> - NEMA 3R	4
	ENC* & ENT* & IN* & ER*	...	...	...	...	NEMA 4X and NEMA 3R	Interp
	ER9645S & IN4012BL4B3	16	47	96	1182	Outdoor <sup>2,3</sup> - NEMA 4X	5
Notes: <sup>1</sup> Indoor enclosures are constructed from cold-formed carbon steel and are available in NEMA 1 and 2. <sup>2</sup> Outdoor Enclosures are constructed from cold-formed carbon steel (Type NEMA 3R, 4, 12) or Stainless steel (Type NEMA 4X) <sup>3</sup> Indoor enclosures are wall mounted directly to structural framing with 4 or 6 bolts. Outdoor enclosures are wall-mounted with 4 bolts through steel mounting tabs. <sup>4</sup> Tap tight screws used to mount door replaced with spot welds.							

# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900462-CR-001 R0



<b>Manufacturer:</b> ABB		<b>Table Description:</b> Enclosures and Internal Frame					<b>TABLE 2</b>			
<b>Model Line:</b> ReliaGear neXT & EntellEon										
<b>Building Code:</b> CBC 2019		<b>Seismic Certification Limits:</b>					$S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$		$I_p = 1.5$	
Model Line (Manufacturer <sup>1</sup> )	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT		
		Depth	Width	Height						
Enclosure NEMA <sup>2</sup> 1/2/3R/4R4x/12	ENC*, ER*	...	...	...	...	Carbon Steel or Stainless Steel		Extrap.		
Enclosure NEMA 1 Indoor (ABB/GE)	ENC6030A	15	30	60	126	Carbon Steel		1		
	ENC*, ER*	...	...	...	...			Interp		
	ENC9645A	10.5	45	96	243			2		
	ENC*, ER*	...	...	...	...			Interp		
	EN9645A	16	45	96	245			6		
Enclosure NEMA 3R and 4X Outdoor (ABB/GE)	ENC7230X	13	32	72	291	Carbon Steel or Stainless Steel	UUT: Stainless Steel	3		
	ENC*, ER*	...	...	...	...			Interp		
	ENC9645R	12.5	47	96	458		UUT: Carbon Steel	4		
	ENC*, ER*	...	...	...	...			Interp		
	ER9645S	16	47	96	502		UUT: Stainless Steel	5		
Internal Frame <sup>2</sup> (ABB/GE)	*IF, *FRM	-	...	...	...	Carbon Steel		Extrap.		
	FRM1630C	-	16	30	14			1,3		
	*IF, *FRM	-	...	...	...			Interp		
	FRM3245C	-	32	45	40			4		
	*IF, *FRM	-	...	...	...			Interp		
	FRM4045F	-	40	45	48			2		
	*IF, *FRM	-	...	...	...			Interp		
	IF4045F	-	40	45	48			5,6		
Notes:										
<sup>1</sup> GE or ABB may be branded on product, products are identical										
<sup>2</sup> Catalog numbers to be interpolated using both 2017 and 2019 testing as designs are comparable.										

Notes:

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<sup>2</sup> Catalog numbers to be interpolated using both 2017 and 2019 testing as designs are comparable.

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900462-CR-001 R0



<b>Manufacturer:</b> ABB		<b>Table Description:</b> Circuit Breakers			<b>TABLE 4</b>
<b>Model Line:</b> EntellEon					
<b>Building Code:</b> CBC 2019		<b>Seismic Certification Limits:</b> $S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$			$I_p = 1.5$
Component Type	Manufacturer <sup>1</sup>	Model	Description	Notes	UUT
Circuit Breaker - Spectra	ABB/GE	EZSEDA36AT0030	Plastic molded case, 7 lbs.		1,2
		EZSEDA36AT0150	Plastic molded case, 7 lbs.		2,3
		EZSGHA36AT0400	Plastic molded case, 17 lbs.		4
		EZSGHA36AT0600	Plastic moldedcase, 17 lbs.		4
		EZSFHA36AT0250	Plastic molded case, 11 lbs.		4
		EZSKHA36AT0800	Plastic molded case, 50 lbs.		2
		EZS*	Plastic molded case, 50 lbs.		Interp
		EZSKHA36AT1200	Plastic molded case, 50 lbs.		2
		EUSGHA36AT0400	Plastic moldedcase, 60 lbs.		3
		EUS*	...		Interp
		EUSKHC3612L3XX	Plastic molded case, 60 lbs.		4
Circuit Breaker - Record Plus	ABB/GE	EZFBV16TE015R2A	Plastic molded case, 3 lbs.	1 Pole	1
		EZFB*, NEFB*	...	EZFB and NEFB are identical, NEFB is new prefix model number.	Interp Interp
		EZFBV26TE100R2BC	Plastic moldedcase, 5 lbs.	2 Pole	1
Circuit Breaker - XT Breakers	ABB/GE	XT1*	Plastic moldedcase, 4 lbs.		Extrap
		XT1HU3125AYD000XXX	Plastic molded case, 4 lbs.		6
		XT4*	...		Interp
		XT4VU3250BYJ000XXX	Plastic molded case, 7 lbs.		5,6
		XT5*	...		Interp
Notes:					
<sup>1</sup> GE or ABB may be branded on product, products are identical					

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

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<b>Manufacturer:</b> ABB		<b>Table Description:</b> Fronts, Vertical Kits, Gutter Doors			<b>TABLE 5</b>
<b>Model Line:</b> ReliaGear neXT & EntellEon					
<b>Building Code:</b> CBC 2019		<b>Seismic Certification Limits:</b>		$S_{DS} = 2.0\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$	$I_p = 1.5$
Component Type	Manufacturer <sup>1</sup>	Model	Description	Notes	UUT
Front	ABB/GE	FT*	...		Extrap
		FT45S00065	Carbon steel, 7 lbs.		5
		FT45VM0260	Carbon steel, 24 lbs.		5
		FT45VF0100	Carbon steel, 24 lbs.		5
		FNT*	...		Interp
		FNT306016HSE3ANCT	Carbon steel, 22 lbs.		1
		FNT307216VSG5ANCT	Carbon steel, 28 lbs.		3
		FNT459632VSK5ANCT	Carbon steel, 31 lbs.		4
		FNT459640ML45ANFT	Carbon steel, 35 lbs.		2
Door in Door	ABB/GE	DID*	...		Extrap
		DD*	...		Extrap
		DDSUP36	Carbon steel, 13lbs.		6
		DDFIL45XX33VF	Carbon steel, 17 lbs.		6
		DD4596AHFS	Carbon steel, 197 lbs.		6
Vertical Main Kit	ABB/GE	VMKSG30C	Carbon steel, 8 lbs.		3
		VMKS*	...		Interp
		VMKSK45C	Carbon steel, 8 lbs.		4
		VM*	...		Interp
		VMX545F	Copper and carbon steel, 18 lbs.		5
		VMX745F	Copper and carbon steel, 18 lbs.		6
Notes:					
<sup>1</sup> GE or ABB may be branded on product, products are identical					

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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900462-CR-001 R0



<b>Manufacturer:</b> ABB		<b>Table Description:</b> Fronts, Vertical Kits, Gutter Doors			<b>TABLE 5</b>
<b>Model Line:</b> ReliaGear neXT & EntellEon					
<b>Building Code:</b> CBC 2019		<b>Seismic Certification Limits:</b>		$S_{DS} = 2.0\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$	$I_p = 1.5$
Component Type	Manufacturer <sup>1</sup>	Model	Description	Notes	UUT
Gutter Doors	ABB/GE	GUT30C16BLA	Carbon steel, 4 lbs.		3
		GUT30C16NNA	Carbon steel, 5 lbs.		1
		GUT45C32BLS	Carbon steel, 8 lbs.		4
		GUT*	...		Interp
		GUT45F40BLA	Carbon steel, 17 lbs.		2
		GC*	...		Interp
		GC45F40BLA	Carbon steel, 17 lbs.		5
Spacers	ABB/GE	SPC1BB	Carbon steel, 1 lb.		1
		SPC2BB	Carbon steel, 1 lb.		1
		SPC*	...		Interp
		SPC3BB	Carbon steel, 3 lbs.		1,3
		SR*	...		Interp
		SR1XBF	Carbon steel, 4 lbs.		6
		SR02BF	Carbon steel, 4 lbs.		6
Lugs	ABB/GE	LUGML45	Copper/aluminum, 6 lbs.		2
		LUGML47	Copper/aluminum, 6 lbs.		2
		LUG*, LG* <sup>1</sup>	...	LUG* and LG* are identical, LG* is new prefix model number.	Interp
		LUGCL45	Aluminum, 8 lbs.		2

Notes:  
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# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1900462-CR-001 R0



<b>Manufacturer:</b> ABB <b>Model Line:</b> ReliaGear neXT & EntellEon				<b>TABLE 6</b>	
<b>Building Code:</b> CBC 2019		<b>Seismic Certification Limits:</b>		$S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$	
				$I_p = 1.5$	
Component Type	Manufacturer <sup>1</sup>	Model	Description	Notes	UUT
RELT	ABB/GE	MOD04A	Carbon steel & wiring, 25 lbs.		4
		MOD*, RT* <sup>1</sup>	...	MOD* and RT* are identical, RT* is new catalog prefix.	Interp
		MOD04C	Carbon steel & wiring, 25 lbs.		4
Surge Portective Devices (SPD)	ABB/GE	SPD120S06SE02	SPD & disconnect, 50 lbs.		4
		SPD*, SP* <sup>1</sup>	...	SPD* and SP* are identical, SP* is new catalog prefix.	Interp
		SPD347Y10SE02	SPD & disconnect, 50 lbs.		4
Main Metering	ABB/GE	AMUSPM04AP	Carbon steel, meter, wiring, 16 lbs.		4
		AMU*	...	AMU* and MT* are identical, MT* is new catalog prefix.	Interp
		AMUSPM04AM	Carbon steel, meter, wiring, 16 lbs.		4
Current Transformers	ABB/GE	AMUSPMA0302CT	Current xformer & carbon steel, 6 lbs.		4
		AMUSPMA0308CT	Current xformer & carbon steel, 6 lbs.		4
		AMU*	...	AMU* and MT* are identical, MT* is new catalog prefix.	Interp
		AMUSPMA0312CT	Current xformer & carbon steel, 6 lbs.		4

Notes:

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# UNIT UNDER TEST (UUT) SUMMARY SHEET

1900462-CR-001 R0



<b>Manufacturer:</b>	ABB	<b>UUT 1</b>
<b>Model Line:</b>	ReliaGear neXT & EntellEon	
<b>Model Number:</b>	ENC6030A & ENT1602NN3H2	
		<b>Serial Number:</b> N/A

**Product Construction Summary:**  
12-14 ga. Cold Formed Carbon Steel

**Options/Subcomponent Summary:**  
Enclosure (PN: ENC6030A), Interior Frame Center (PN: FRM1630C), Bus Stack 16x (PN: ENT1602NN3H2), Gutter-standard (GUT30C16NNA), Front (PN: FNT306016HSE3ANCT), Breaker - Spectra E (PN: EZSEDA36AT0030), Breaker - Record Plus (PN: EZFBV16TE015R2A), Breaker - Record Plus (PN: EZFBV26TE100R2BC), Spacers (PN: SPC1BB), Spacers (PN: SPC2BB), Spacers (PN: SPC3BB), Ground (PN: GRN02BG10), Lug Wire Post (PN: LWP30C)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
250	15	30	60	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
Building Code		Test Criteria		S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2019		ICC-ES AC156 (2018)		2.67	1.0	1.5	4.27	3.2	1.79	0.72

**Test Mounting Details:**



UUT wall mounted-rigid with four (4) 3/8"-16 Grade 5 bolts, washers, and lock washers (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

1900462-CR-001 R0



<b>Manufacturer:</b>	ABB	<b>UUT 2</b>
<b>Model Line:</b>	ReliaGear neXT & EntellEon	
<b>Model Number:</b>	ENC9645A & ENT4012BL3H2	
		<b>Serial Number:</b> N/A

**Product Construction Summary:**

12- 14 ga. Cold Formed Carbon Steel

**Options/Subcomponent Summary:**

Enclosure (PN: ENC9645A), Interior Frame Center (PN: FRM4045F), Bus stack 40x (PN: ENT4012BL3H2), Gutter -standard (PN: GUT45F40BLA), Front (PN: FNT459640ML45ANFT), Breaker - Spectra K (PN: EZSKHA36AT0800), Breaker - Spectra K (PN: EZSKHA36AT1200), Breaker - Spectra E (PN: EZSEDA36AT0030), Breaker - Spectra E (PN: EZSEDA36AT0150), Lug (PN: LUGML45), Lug (PN: LUGML47), Lug (PN: LUGCL45), Ground (PN: GRN12BG47), Neutral (PN: NEU12I0N), Lug Wire Post (PN: LWP45F), Kirk Locks (PN: AMUKRKSK)

**UUT Properties**

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
896	10.5	45	96	N/A	N/A	N/A

**UUT Highest Passed Seismic Run Information**

Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2019	ICC-ES AC156 (2018)	2.8	1.0	1.5	4.48	3.36	1.88	0.76

**Test Mounting Details:**



UUT wall mounted - rigid with six (6) 3/8" -16 Grade 5 bolts, washers, and lock washers (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

1900462-CR-001 R0



<b>Manufacturer:</b>	ABB	<b>UUT 3</b>
<b>Model Line:</b>	ReliaGear neXT & EntellEon	
<b>Model Number:</b>	ENC7230X & ENT1604BL3H2	
		<b>Serial Number:</b> N/A

## Product Construction Summary:

12- 14 ga. Stainless Steel

## Options/Subcomponent Summary:

Enclosure 72x32 (PN: ENC7230X), Interior Frame Center(PN: FRM1630C), Bus Stack 24x (PN: ENT1604BL3H2), Front – Center(PN: FNT307216VSG5ANCT), Main SG (PN: EUSGHA36AT0400), Kirk Locks (PN: AMUKRKSG), Vertical Main kit SG (PN: VMKSG30C), Breaker - Spectra E ( PN: EZSEDA36AT0150), Spacers (PN: SPC3BB), Gutter-standard (PN: GUT30C16BLA), LWP 30W (PN: LWP30C), Neutral 250 no GF (PN: NEU04I0N), Ground 10 device (PN: GRN04BG10)

## UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
436	13	32	72	N/A	N/A	N/A

## UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2019	ICC-ES AC156 (2018)	2.75	1.0	1.5	4.40	3.30	1.84	0.74

## Test Mounting Details:



UUT wall mounted-rigid with four (4) 1/2"-13 Grade 5 bolts and belleville washers (torqued to 75 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

1900462-CR-001 R0



<b>Manufacturer:</b>	ABB	<b>UUT 4</b>
<b>Model Line:</b>	ReliaGear neXT & EntellEon	
<b>Model Number:</b>	ENC9645R & ENT3212BL3H2	
<b>Serial Number:</b>		N/A

**Product Construction Summary:**  
12-14 ga. Cold Formed Carbon Steel

**Options/Subcomponent Summary:**  
Enclosure 96”X47 (PN: ENC9645R), Interior Frame Center (PN: FRM3245C), Bus Stack 32x (PN: ENT3212BL3H2), Front – center (PN: FNT459632VSK5ANCT), Main SK (PN: EUSKHC3612L3XX), Vertical Main Kit SK (PN: VMKSK45C), Gutter-standard (PN: GUT45C32BLS), LWP 45W (PN: LWP45C), Neutral 1200gf (PN: NEU1210GML45), Ground 47 device (PN: GRN12BG47), RELT (PN: MOD04A), RELT (PN: MOD04C), Metering (PN: AMUSPM04AP), Metering (PN: AMUSPM04AM), SPD (PN: SPD120S06SE02), SPD (PN: SPD347Y10SE02), Circuit Breaker Spectra (PN: EZSFHA36AT0250), Circuit Breaker Spectra (PN: EZSGHA36AT0400), Circuit Breaker Spectra (PN: EZSGHA36AT0600), CT (PN: AMUSPMA0302CT), CT (PN: AMUSPMA0308CT), CT (PN: AMUSPMA0312CT), CT (PN: AMUSPM40FMSMMK), CT (PN: AMUSPM45CMSMMK), CT (PN: AMUSPM45FMSMMK)

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
988	12.5	47	96	N/A	N/A	N/A				
UUT Highest Passed Seismic Run Information										
Building Code		Test Criteria		S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2019		ICC-ES AC156 (2018)		2.75	1.0	1.5	4.40	3.30	1.84	0.74

**Test Mounting Details:**



UUT wall mounted-rigid with four (4) 1/2"-13 Grade 5 bolts and belleville washers (torqued to 75 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

1900462-CR-001 R0



<b>Manufacturer:</b>	ABB	<b>UUT 5</b>
<b>Model Line:</b>	ReliaGear neXT & EntellEon	
<b>Model Number:</b>	ER9645S & IN4012BL4B3	
<b>Serial Number:</b>		N/A

## Product Construction Summary:

12- 14 ga. Stainless Steel

## Options/Subcomponent Summary:

Enclosure - Stainless Steel (PN: ER9645S), Interior Frame (PN:IF4045F), Bus Stack - 40X, 4 pole, CU bus (PN: IN4012BL4B3), Gutter Doors (PN: GC45F40BLA), Front (PN: FT45VF0100), Front (PN: FT45VM0260), Front (PN: FT45S00065), Horizontal Breaker - XT7(PN: XT7LU12EQYX000XXX), Horizontal Breaker - XT4 (PN: XT4VU3250BYJ000XXX), Vertical Breaker - XT5 (PN:XT5LU360BAFN000XXX), Vertical Main Mounting Kit (VMX545F)

## UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,182	16	47	96	N/A	N/A	N/A

## UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2019	ICC-ES AC156 (2018)	2.0 2.5	1.0 0.0	1.5	3.20	2.40	1.67	0.67

## Test Mounting Details:



UUT was wall mounted-rigid with four (4) 1/2"-13 grade 5 bolts, washers, and lock washers (torqued to 75ft.-lbs.)  
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.  
Contents were included in testing per operating conditions.

TRU Compliance, by Structural Integrity Associates, Inc.

844-TRU-0200 | info@trucompliance.com

# UNIT UNDER TEST (UUT) SUMMARY SHEET

1900462-CR-001 R0



<b>Manufacturer:</b>	ABB	<b>UUT 6</b>
<b>Model Line:</b>	ReliaGear neXT & EntellEon	
<b>Model Number:</b>	ER9645A & IN4012BL4H1	
<b>Serial Number:</b>		N/A

## Product Construction Summary:

NEMA 1 Panel - Cold Formed Carbon Steel

## Options/Subcomponent Summary:

Enclosure (PN: ER9645A), Interior Frame (PN: IF4045F), Bus Stack - 40X, 4 pole, AL bus (PN: IN4012BL4H1), Door-in-Door Deadfront Kit (PN: DD4596AHFS), Door-in-Door Filler Kit (PN: DDFIL45XX33VF), Door-in-Door Filler Support Rail Kit (PN: DDSUP36), Horizontal Breaker - XT7 (PN: XT7LU12EQYX000XXX), Horizontal Breaker - XT5 (PN: XT5LU360BAYN000XXX), Horizontal Breaker - XT4 (PN: XT4VU3250BYJ000XXX), Horizontal Breaker - XT1 (PN: XT1HU3125AYD000XXX), Vertical Breaker - XT7 (PN: XT7LU12EQFX000XXX), Vertical Main Mounting Kit (VMX745F), XT1 Spacer Kit (PN: SR1XBF), Spacer (PN: SR02BF)

## UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
970	16	45	96	N/A	N/A	N/A

## UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2019	ICC-ES AC156 (2018)	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 six (6) 3/8" -16 grade 5 bolts, washers, and lock washers (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.