APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0572 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Schneider Electric

Manufacturer's Technical Representative: Kristian Silberbauer

Mailing Address: Silcon Alle 1, DK-6000 Kolding, Denmark

Telephone: +45 72 19 01 65 Email: Kristian.silberbauer@schneider-electric.com

Product Information

Product Name: Galaxy VS

Product Type: UPS and Maintenance Bypass Cabinets with Transformer

Product Model Number: See Certified Product Listing Tables
(List all unique product identification numbers and/or part numbers)

General Description: Electrical UPS and maintenance bypass cabinets constructed of sheet metal enclosures.

Mounting Description: Base mounted rigid

Applicant Information

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

Contact Person: Galen Reid

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

Telephone: (844) 878-0200 Email: greid@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: _____ Date: 9/5/2018

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

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: National Technical Systems - Huntsville

Contact Name: Greg Mason

Mailing Address: 7800 Highway 20 West, Huntsville, AL 35806

Telephone: (256) 837-4411 Email: Greg.Mason@nts.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.09 (S_{DS} = 1.45g, z/h = 1.0); 0.90 (S_{DS} = 2.0g, z/h = 0.0)

S_{DS} (Design spectral response acceleration at short period, g) = 1.45 (z/h = 1.0); 2.0 (z/h = 0.0)

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

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0 (S_{DS} = 1.45g); 0.0 (S_{DS} = 2.0g)

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): Attachment, 4-point letter

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: Date: May 10, 2019

Print Name: Ali Sumer Title: DSE

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

1800365-CR-001 R1

Manufacturer: Schneider Electric
Model Line: Galaxy VS

TABLE 1

Certified Product Construction Summary:
Carbon Steel frame and panels.
All UPS models have identical internal components with either 1 or 2 power modules.

Certified Options Summary:
UPS - Standalone or ganged to MBC.
MBC - Ganged to UPS only

Mounting Configuration:
Base 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}= ***1.45 g z/h=1.0*** S_{DS}= ***2.00 g z/h=0.0*** I_P= ***1.5***

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Galaxy VS (208 V)	GVSUPS10KFS	33.3	20.5	58.5	485	1 Power Module	Interp.
	GVSUPS15KFS	33.3	20.5	58.5	485	1 Power Module	Interp.
	GVSUPS20KFS	33.3	20.5	58.5	485	1 Power Module	Interp.
	GVSUPS25KFS	33.3	20.5	58.5	485	1 Power Module	4
	GVSUPS30KFS	33.3	20.5	58.5	551	2 Power Modules	Interp.
	GVSUPS40KFS	33.3	20.5	58.5	551	2 Power Modules	Interp.
	GVSUPS50KFS	33.3	20.5	58.5	551	2 Power Modules	Interp.
Galaxy VS (480V)	GVSUPS20KGS	33.3	20.5	58.5	485	1 Power Module	Interp.
	GVSUPS30KGS	33.3	20.5	58.5	485	1 Power Module	Interp.
	GVSUPS40KGS	33.3	20.5	58.5	485	1 Power Module	Interp.
	GVSUPS50KGS	33.3	20.5	58.5	485	1 Power Module	Interp.
	GVSUPS60KGS	33.3	20.5	58.5	551	2 Power Modules	Interp.
	GVSUPS80KGS	33.3	20.5	58.5	551	2 Power Modules	Interp.
	GVSUPS100KGS	33.3	20.5	58.5	551	2 Power Modules	1,2,3,5
Maintenance Bypass Cabinet (MBC)	GVSBPSU80G	33.3	11.8	58.5	243	208V: 10-40kW, 480V: 20-80kW	Extrap.
	GVSBPSU150G	33.3	11.8	58.5	265	208V: 50-75kW, 480V: 100-150kW	1
MBC with Input Transformer	GVSBPIT25	33.3	23.6	58.5	771	25kW, 480V/600V IN	4
	GVSBPIT50	33.3	23.6	58.5	1102	50kW, 480V/600V IN	Interp.
MBC with Output Transformer	GVSBPOT50	33.3	23.6	58.5	1102	50kW, 480V IN	Interp.
	GVSBPOT100	33.3	23.6	58.5	1367	100kW, 480V IN	3,5

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

1800365-CR-001 R1

Manufacturer: Schneider Electric
Model Line: Galaxy VS

Table Description: Electrical Components

TABLE 2

Building Code: CBC 2016

Seismic Certification Limits: S_{DS} = 1.45 g z/h = 1.0; S_{DS} = 2.00 g z/h = 0.0; I_P = 1.5

Component Type	Manufacturer	Model	Description	Notes	UUT
Circuit Breakers	Square D	HJF36150CU31X	MCCB 150A 600VAC 3P H FRAME 65KA		4
		JJF36250CU31X	MCCB 250A 600VAC 3P J FRAME 65KA		1,3,5
		LJF36400CU31X	MCCB 400A 600VAC 3P L FRAME 65KA		1
Power Supply Units	Schneider Electric	0N-96782	ASSY PSU-CONNECTION BOX		1,2,3,4,5
	Schneider Electric	0N-96783	Controller box		1,2,3,4,5
Power Module	Schneider Electric	0G-PM50KD	ASSY GENERIC POWER MODULE 50KW AGILIS		1,2,3,4,5
Contactor	Schneider Electric	LC1D65A6BDS304	CONTACTOR 91A 24VDC 3 POLES BUSBAR ROHS		1,2,3,4,5
		LC1F150BD	CONTACTOR 3P AC3-150A,440VAC COIL 24VDC		1,2,3,4,5
Switches	Schneider Electric	LV431629	SWITCH-DISCONNECTOR COMPACT NSX250NA -		1,2,3,4,5
Static Bypass Switch	Schneider Electric	0G-SBS100KD	SBS100KVA MODULE AGILIS		1,2,3,4,5
Fuses	MERSEN	A330188	FUS 315A AR SCW 100X48X20		1,2,3,4,5
Transformers	Jinggquanhau Electronics	TP-0030-0542	30kVA, 3-Phase, Cu windings, 430 lbs.		Extrap.
		TP-0030-0457	30kVA, 3-Phase, Cu windings, 489 lbs.		4
		TP-0060-0547	60kVA, 3-Phase, Cu windings, 750 lbs.		Interp.
		TP-0060-0458	60kVA, 3-Phase, Cu windings, 805 lbs.		Interp.
		TP-0100-0459	100kVA, 3-Phase, Cu windings, 1157 lbs.		3,5

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

1800365-CR-001 R1

Manufacturer: Schneider Electric
Model Line: Galaxy VS

Table Description: Optional Components

TABLE 3

Building Code: CBC 2016

Seismic Certification Limits: S_{DS} = 1.45 g z/h = 1.0; S_{DS} = 2.00 g z/h = 0.0; I_P = 1.5

Component Type	Manufacturer	Model	Description	Notes	UUT
Seismic Kits	Schneider Electric	GVSOPT002	Seismic Kit for Wide UPS or Modular Battery Cabinet		1,2,3,4,5
		GVSOPT003	Seismic Kit for Narrow Bypass Floormount		1
		GVSOPT008	Seismic Kit for Transformer Cabinet		3,4,5
Kirk Key Kit	Schneider Electric	GVSOPT004	Kirk Key Kit for Maintenance Bypass		1
		GVSOPT007	Kirk Key Kit for Transformer Cabinet		3,5

UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

Manufacturer: Schneider Electric

Model Line: Galaxy VS

UUT	Unit Description	Report Number	Testing Laboratory	S_{DS}	z/h	I_P
1	Galaxy VS 100kW UPS with 150kW MBC	PR079655-TR-18 & Addendum 1_R1	NTS - Huntsville	1.45 2.00	1.0 0.0	1.5
2	Galaxy VS100kW UPS	PR079655-TR-18 (UUT2a) & Addendum 1_R1	NTS - Huntsville	1.45 2.00	1.0 0.0	1.5
3	Galaxy VS 100kW UPS w/100kW MBC & output transformer	PR079655-TR-18 & Addendum 1_R1	NTS - Huntsville	1.45 2.00	1.0 0.0	1.5
4	Galaxy VS 25kW UPS w/25kW MBC	PR079655-TR-18 & Addendum 1_R1	NTS - Huntsville	1.45 2.00	1.0 0.0	1.5
5	Galaxy VS 100kW UPS w/100kW MBC	PR087029-01TR Rev. 1 (UUT1) & Addendum 1_R1	NTS - Huntsville	1.45 2.00	1.0 0.0	1.5

Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

UUT 1

Manufacturer: Schneider Electric
Model Line: Galaxy VS
Model Number: GVSUPS100KGS w/GVSBPSU150G ***Serial Number:*** N/A

Product Construction Summary:
100kW UPS with 150kW MBC
Carbon steel frame and panels

Options/Subcomponent Summary:
(2) Power Modules, 91A 24VDC 3-pole contactor, 400A L-frame breaker, 250A J-frame breaker, Power Supply, 150A 440VAC 3-pole contactor, Connection Box, Controller Box, 315A Fuse, Static Bypass switch, Seismic kit

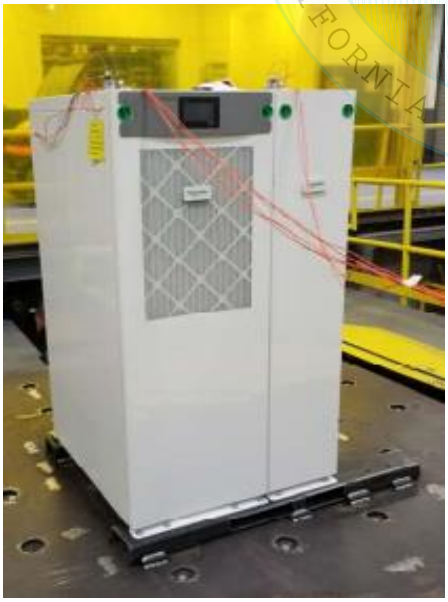
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
816	33.3	32.3	58.5	16.2	8.0	>33.3

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	1.45	1.0	1.5	2.32	1.74	1.33	0.53
		2.00	0.0					

Test Mounting Details:



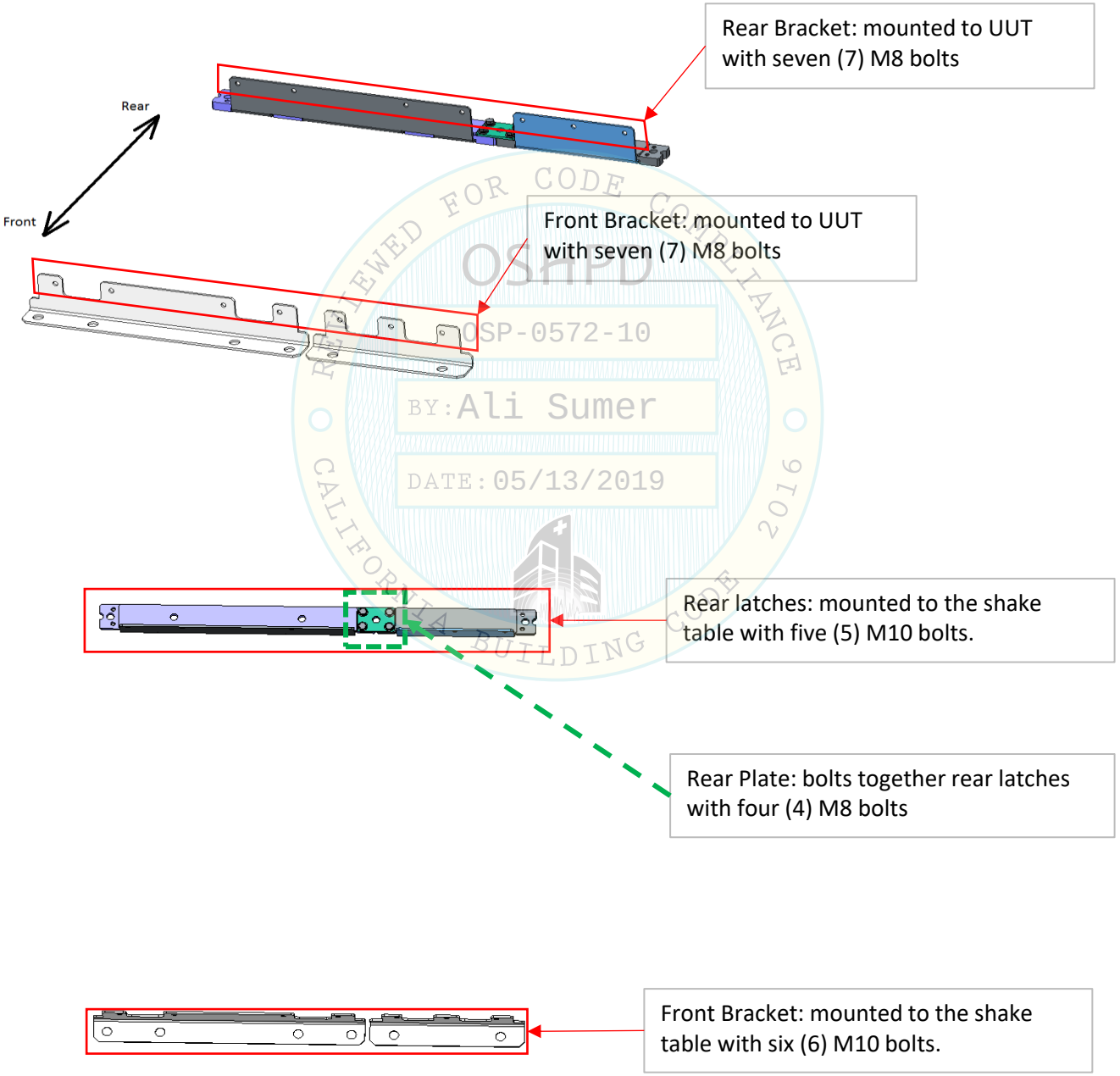
The UUT was rigid-base mounted using customer provided seismic kit (PN:GVSOPT002 and GVSOPT003). The seismic kit mounting details can be found on the following page. M8 bolts were torqued to 21 Nm. M10 bolts were torqued to 42 Nm. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

Manufacturer:	Schneider Electric		**UUT 1**
Model Line:	Galaxy VS		
Model Number:	GVSUPS100KGS w/GVSBPSU150G	***Serial Number:***	N/A

Seismic Mounting Kit Details:



UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

UUT 2

Manufacturer: Schneider Electric
Model Line: Galaxy VS
Model Number: GVSUPS100KGS ***Serial Number:*** N/A

Product Construction Summary:
100kW UPS
Carbon steel frame and panels

Options/Subcomponent Summary:
(2) Power Modules, 91A 24VDC 3-pole contactor, 400A L-frame breaker, 250A J-frame breaker, Power Supply, 150A 440VAC 3-pole contactor, Connection Box, Controller Box, 315A Fuse, Static Bypass switch, Seismic kit

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
551	33.3	20.5	58.5	15.9	6.1	>33.3

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	1.45	1.0	1.5	2.32	1.74	1.33	0.53
		2.00	0.0					

Test Mounting Details:

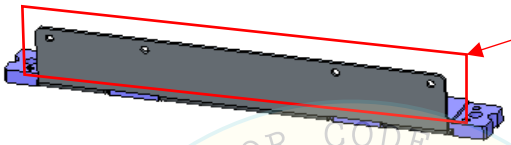
The UUT was rigid-base mounted using customer provided seismic kit (PN: GVSOPT002). The seismic kit mounting details can be found on the following page. M8 bolts were torqued to 21 Nm. M10 bolts were torqued to 42 Nm.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

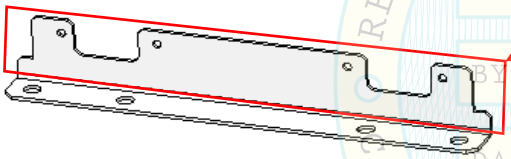
1800365-CR-001 R1

Manufacturer:	Schneider Electric		**UUT 2**
Model Line:	Galaxy VS		
Model Number:	GVSUPS100KGS	***Serial Number:***	N/A

Seismic Mounting Kit Details:



Rear Bracket: mounted to UUT with four (4) M8 bolts



Front Bracket: mounted to UUT with four(4) M8 bolts

Rear latches: mounted to the shake table with four (4) M10 bolts.

Front Bracket: mounted to the shake table with four (4) M10 bolts.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

UUT 3

Manufacturer: Schneider Electric
Model Line: Galaxy VS
Model Number: GVSUPS100KGS w/GVSBPOT100 ***Serial Number:*** N/A

Product Construction Summary:
100kW UPS with 100kW MBC and output transformer
Carbon steel frame and panels

Options/Subcomponent Summary:
(2) Power Modules, 91A 24VDC 3-pole contactor, 250A J-frame breaker, Power Supply, 150A 440VAC 3-pole contactor, Connection Box, Controller Box, 315A Fuse, Static Bypass switch, 100kVA Transformer, Seismic kit

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1918	33.3	44.1	58.5	14.7	9.7	18.2

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	1.45	1.0	1.5	2.32	1.74	1.33	0.53
		2.00	0.0					

Test Mounting Details:

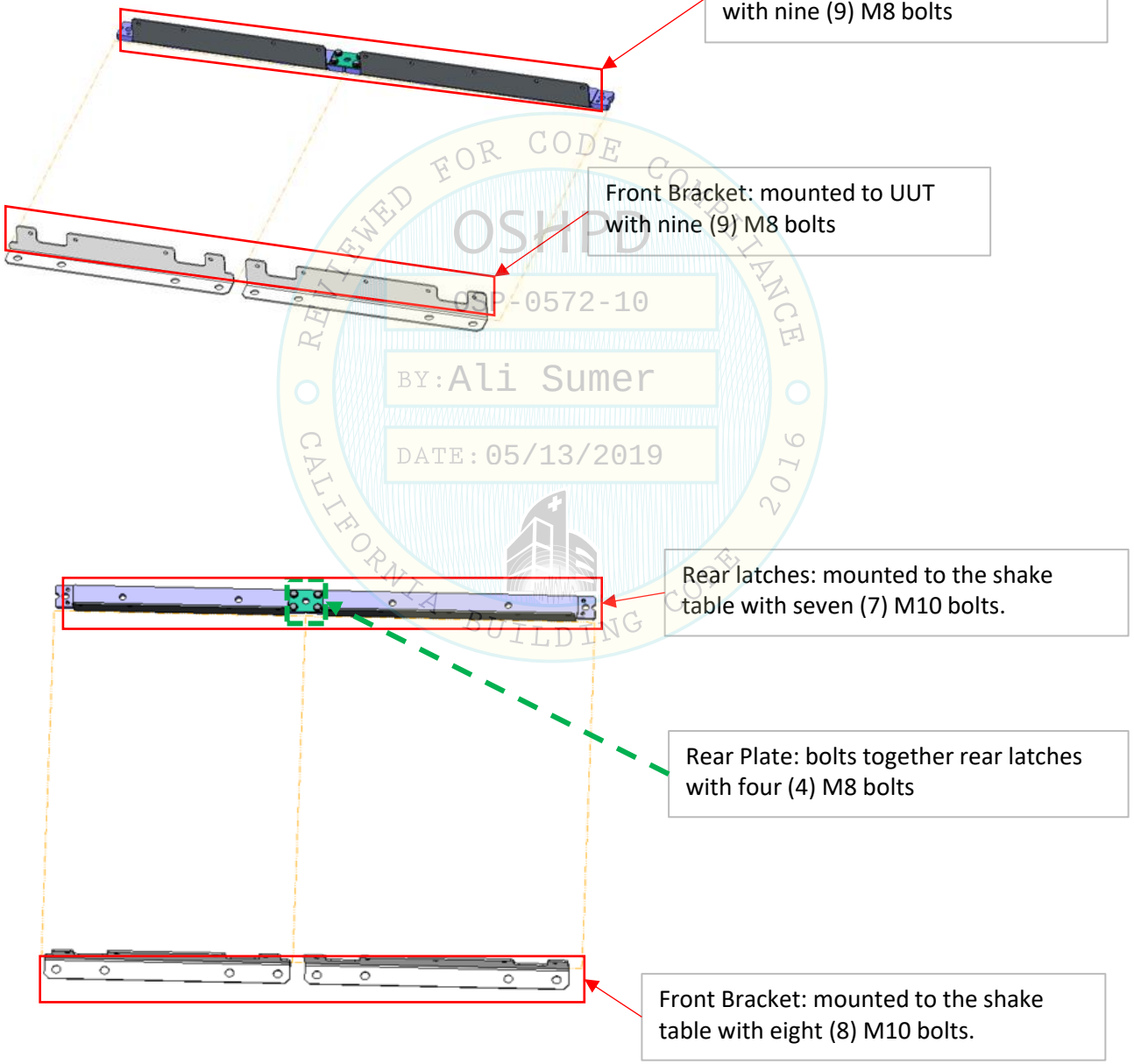
The UUT was rigid-base mounted using customer provided seismic kit (GVSOPT002 and GVSOPT008). The seismic kit mounting details can be found on the following page. M8 bolts were torqued to 21 Nm. M10 bolts were torqued to 42 Nm.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

Manufacturer:	Schneider Electric		**UUT 3**
Model Line:	Galaxy VS		
Model Number:	GVSUPS100KGS w/GVSBPOT100	***Serial Number:***	N/A

Seismic Mounting Kit Details:



UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

UUT 4

Manufacturer: Schneider Electric
Model Line: Galaxy VS
Model Number: GVSUPS25KFS w/GVSBPIT25 ***Serial Number:*** N/A

Product Construction Summary:
25kW UPS with 25kW MBC and input transformer
Carbon steel frame and panels

Options/Subcomponent Summary:
(1) Power Module, 91A 24VDC 3-pole contactor, 150A H-frame breaker, Power Supply, 150A 440VAC 3-pole contactor, Connection Box, Controller Box, 315A Fuse, Static Bypass switch, 30kVA Transformer, Seismic kit

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1256	33.3	44.1	58.5	19.5	13.3	22.0

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	1.45	1.0	1.5	2.32	1.74	1.33	0.53
		2.00	0.0					

Test Mounting Details:

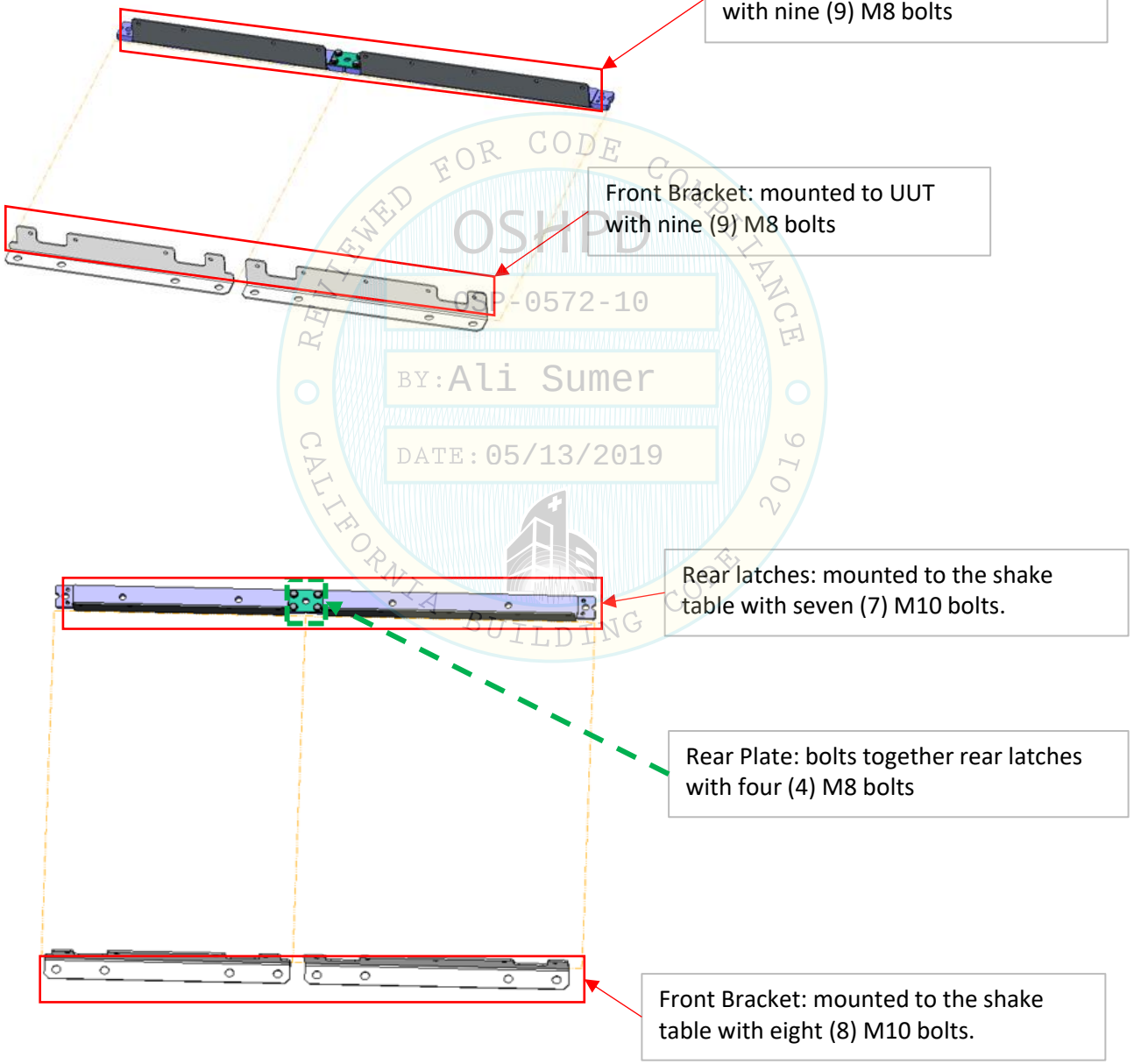
The UUT was rigid-base mounted using customer provided seismic kit (GVSOPT002 and GVSOPT008). The seismic kit mounting details can be found on the following page. M8 bolts were torqued to 21 Nm. M10 bolts were torqued to 42 Nm.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

Manufacturer:	Schneider Electric		**UUT 4**
Model Line:	Galaxy VS		
Model Number:	GVSUPS25KFS w/GVSBPIT25	***Serial Number:***	N/A

Seismic Mounting Kit Details:



UNIT UNDER TEST (UUT) SUMMARY SHEET

1800365-CR-001 R1

UUT 5

Manufacturer: Schneider Electric
Model Line: Galaxy VS
Model Number: GVSUPS100KGS w/GVSBPOT100 ***Serial Number:*** N/A

Product Construction Summary:
100kW UPS with 100kW MBC and input transformer
Carbon steel frame and panels

Options/Subcomponent Summary:
(2) 50kW Power Modules, 91A 24VDC 3-pole contactor, 250A J-frame breaker, Power Supply, 150A 440VAC 3-pole contactor, Connection Box, Controller Box, 315A Fuse, Static Bypass switch, 100kVA Transformer, Seismic kit

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1918	33.3	44.1	58.5	12.8	8.6	19.4

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	1.45	1.0	1.5	2.32	1.74	1.33	0.53
		2.00	0.0					

Test Mounting Details:

The UUT was rigid-base mounted using customer provided seismic kit (GVSOPT002 and GVSOPT008). The seismic kit mounting details can be found on the following page. M8 bolts were torqued to 21 Nm. M10 bolts were torqued to 42 Nm.
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

1800365-CR-001 R1

Manufacturer:	Schneider Electric		**UUT 5**
Model Line:	Galaxy VS		
Model Number:	GVSUPS100KGS w/GVSBPOT100	***Serial Number:***	N/A

Seismic Mounting Kit Details: