APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0397 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: **GE HEALTHCARE**

Manufacturer's Technical Representative: Tom Farnow

Mailing Address: 3000 N. Grandview Blvd., Waukesha, WI 53188-1696

Telephone: 888-406-1101 Email: Tom.Farnow@gehcseismic.com

Product Information

Product Name: LIGHTSPEED VCT System

Product Type: MEDICAL IMAGING EQUIPMENT

Product Model Number: See Attachment 1
(List all unique product identification numbers and/or part numbers)

General Description: System components of multiple-component Computed Tomography (CT) medical imaging system. Equipment shall include all enhancements present in test specimen.

Mounting Description: Rigid base mounted

Applicant Information

Applicant Company Name: **EASE LLC**

Contact Person: JONATHAN ROBERSON, S.E.

Mailing Address: 5877 Pine Ave. Suite 210, Chino Hills, CA 91709

Telephone: (406) 541-EASE (3273) Email: j.roberson@easeco.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant: Date: 5/19/14

Title: Principal Engineer Company Name: EASE LLC

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

Company Name: **EASE LLC**

Name: Jonathan Roberson, S.E. California License Number: S4197

Mailing Address: 5877 Pine Ave. Suite 210, Chino Hills, CA 91709

Telephone: (909) 606-7622 Email: j.roberson@easeco.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: Environmental Testing Laboratory, Inc.

Contact Name: Brady Richard

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

Telephone: (972) 247-9657 Email: brady@etldallas.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = **See Attachment 1, Table 2**

S_{DS} (Design spectral response acceleration at short period, g) = **See Attachment 1, Table 2**

a_p (In-structure equipment or component amplification factor) = **See Attachment 1, Table 2**

R_p (Equipment or component response modification factor) = **See Attachment 1, Table 2**

Ω_0 (System overstrength factor) = **See Attachment 1, Table 2**

I_p (Importance factor) = **1.5**

z/h (Height factor ratio) = **See Attachment 1, Table 2**

Equipment or Component Natural Frequencies (Hz) = **See Attachment 2**

Overall dimensions and weight (or range thereof) = **See Attachment 1, Table 1**

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, 2010: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

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

☒ Other(s) (Please Specify): Attachments 1 & 2

OSHPD Approval (For Office Use Only) – **Approval Expires on December 31, 2019**

Signature: _____ Date: August 11, 2014

Print Name: Timothy J. Piland Title: SSE

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

Condition of Approval (if applicable): _____

ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

TABLE 1: SEISMIC CERTIFIED SYSTEMS & COMPONENTS

Manufacturer	**GE HEALTHCARE**
System	**LIGHTSPEED VCT**

COMPONENT	MODEL NUMBER	APPROX. DIMENSIONS (IN.) W	D	H	MAX. WT. (LB.)	MOUNT	BASIS [1]
GANTRIES							
LightSpeed VCT Gantry	5124069-11	89.25	39.65	74.6	4085	Floor	UUT1
LightSpeed VCT Gantry	5124069-5	89.25	39.65	74.6	4085	Floor	SAME (UUT1)
LightSpeed VCT Gantry	5124069-6	89.25	39.65	74.6	4085	Floor	SAME (UUT1)
LightSpeed VCT Gantry	5124069-2	89.25	39.65	74.6	4130	Floor	UUT2
LightSpeed VCT Gantry	5124069	89.25	39.65	74.6	4130	Floor	SAME (UUT2)
PATIENT TABLES							
GT2000	5121647-3	25.6	114.5	19.2 / 41.3	1146 [2]	Floor	UUT4
GT2000	5121647	25.6	114.5	19.2 / 41.3	1146	Floor	SAME (UUT4)
GT2000	5121647-4	25.6	114.5	19.2 / 41.3	1146	Floor	SAME (UUT4)
GT1700	5122080-3	25.6	93.3	19.2 / 41.3	1047	Floor	INT
GT1700	5122080-4	25.6	93.3	19.2 / 41.3	1047	Floor	INT
GT1700	5122080	25.6	93.3	19.2 / 41.3	1047	Floor	INT
GT1700V	5122080-11	25.6	93.3	19.2 / 41.3	1059 [3]	Floor	UUT6
CONSOLES [4]							
GOC6	5212920-310	48.74	46.54 / 54.74	26.7 / 34.7	512	Floor	UUT5
GOC6.6	5212920-350	48.74	46.54 / 54.74	26.7 / 34.7	405	Floor	INT
GOC6.6	5212920-355	48.74	46.54 / 54.74	26.7 / 34.7	405	Floor	INT
GOC6.6	5212920-150	48.74	46.54 / 54.74	26.7 / 34.7	405	Floor	UUT7
POWER DISTRIBUTION (PDU) [4]							
Power Distribution Unit	2326492-4	27.6	21.7	41.8	806	Floor	UUT3
Power Distribution Unit	2326492-60	27.6	21.7	41.8	818	Floor	SAME (UUT8)
Power Distribution Unit	2326492-61	27.6	21.7	41.8	818	Floor	UUT8

Mount	Floor (Rigid Base): free-standing, base-mounted condition with the component rigidly attached to a supporting structure and no lateral support above the base.
Notes	1. BASIS: • UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program. • SAME: Model is physically, mechanically & electrically the same as test specimen. Difference is limited to model number, color, software and/or GE manufacturing location. • INT (Interpolated or Extrapolated): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line. 2. Patient Table weight does not include the 550 lb. simulated patient load present during testing. 3. Patient Table weight does not include the 350 lb. simulated patient load present during testing. 4. Weight includes mounting brackets used in testing. 5. All components listed above are manufactured by GE Healthcare unless otherwise noted.

TABLE 2: ASCE 7-10 DESIGN BASIS FOR EQUIPMENT

COMPONENT	MODEL No.	F_P/W_P	S_{DS}	z/h	a_P	R_P	Ω_0
LightSpeed VCT Gantry	5124069-11 5124069-5 5124069-6 5124069-2 5124069	2.40	2.0	1.0	1	1 ½	1 ½
		1.13	2.5	0			
GT2000 Patient Table GT1700 Patient Table	5121647-3 5121647 5121647-4 5122080-3 5122080-4 5122080	2.40	2.0	1.0	1	1 ½	1 ½
		1.13	2.5	0			
GT1700V Patient Table	5122080-11	2.4	2.0	1.0	1	1 ½	1 ½
		1.17	2.6	0			
GOC6 GOC6.6 GOC6.6	5212920-310 5212920-350 5212920-355	1.50	2.0	1.0	2 ½	6	2 ½
		1.13	2.5	0			
GOC6.6	5212920-150	1.50	2.0	1.0	2 ½	6	2 ½
		1.17	2.6	0			
Power Distribution Unit	2326492-4	1.44	2.0	1.0	1	2 ½	2 ½
		1.13	2.5	0			
Power Distribution Unit	2326492-60 2326492-61	1.44	2.0	1.0	1	2 ½	2 ½
		1.17	2.6	0			

UUT- 1 LightSpeed VCT Gantry

MANUFACTURER:	General Electric Company
IDENTIFICATION:	Model No.: 5124069-11
DESCRIPTION:	System Component of the LightSpeed VCT System. Gantry includes "Seismic Kit"
MOUNTING:	Floor mounted using (4) – 5/8" dia GR 8 hex head bolts(torqued to 60 lb-ft) w/ GEHC supplied Gantry foot assembly

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis
89.25	39.65	74.6	4085	8.6	6.2	20.0

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.0	1.34 1.68	0.54 0.68

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test

UUT- 2 LightSpeed VCT Gantry

MANUFACTURER:	General Electric Company
IDENTIFICATION:	Model No.: 5124069-2
DESCRIPTION:	System Component of the LightSpeed VCT System. Gantry includes "Seismic Kit"
MOUNTING:	Floor mounted using (4) – 5/8" dia GR 8 hex head bolts(torqued to 60 lb-ft) w/ GEHC supplied Gantry foot assembly

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Front-Axis	Side-Axis	Vertical-Axis
89.25	39.65	74.6	4130	8.8	7.1	21.7

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.0	1.34 1.68	0.54 0.68

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test

UUT- 3 Power Distribution Unit

MANUFACTURER:	GE Hangwei Medical Systems CO. LTD.
IDENTIFICATION:	Model No.: 2326492-4
DESCRIPTION:	System Component of the LightSpeed VCT System.
MOUNTING:	Floor mounted using (4) – 3/8" dia. socket head bolts through GEHC supplied mounting brackets to aluminum interface plate.

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Front-Axis	Side-Axis	Vertical-Axis
27.6	21.7	41.8	806+22 brackets	26.7	18.9	>50

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.0	1.34 1.68	0.54 0.68

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test

UUT- 4 GT2000 Patient Table

MANUFACTURER:	GE Hangwei Medical Systems CO. LTD.
IDENTIFICATION:	Model No.: 5121647-3
DESCRIPTION:	System Component of the LightSpeed VCT System GT2000 N9 Patient Table Test specimen included a simulated patient load of 550 lb. Seismic Kit
MOUNTING:	Floor: (4) – 5/8" dia GR 8 hex head bolts (torqued to 60 lb-ft) w/ GEHC supplied patient table foot assembly.

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Transverse-Axis	Longitudinal-Axis	Vertical-Axis
25.6	114.5	19.2 / 41.3	1146+550 Patient	2.7	7.1	5.7

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.0	1.34 1.68	0.54 0.68

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test

UUT- 5 GOC6 VCT Console

MANUFACTURER:	GE Healthcare Japan Corporation
IDENTIFICATION:	Model No.: 5212920-310
DESCRIPTION:	System Component of the LightSpeed VCT System. GOC6.5 Console with Xtream HD upgrade
MOUNTING:	Floor mounted using (4) – 3/8" dia. socket head bolts through GEHC supplied mounting brackets to aluminum interface plate.

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Front-Axis	Side-Axis	Vertical-Axis
48.74	46.54 to 54.74	26.7 to 34.7	501+11 brackets	14.2	6.5	14.6

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.5	1.0 0.0	1.5	3.2 2.5	2.4 1.0	1.34 1.68	0.54 0.68

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test

UUT- 6 GT1700V Table

MANUFACTURER:	GE Hangwei Medical Systems Co., LTD
IDENTIFICATION:	Model No.: 5122080-11
DESCRIPTION:	System component of the **Optima CT660 System** Test specimen included a simulated patient load of 350 lb.
MOUNTING:	Floor mounted using (4) – 5/8" dia GR 8 hex head bolts (torqued to 60 lb-ft) w/ GEHC supplied patient table foot assembly. Leveling foot bushing excluded.

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Transverse-Axis	Longitudinal-Axis	Vertical-Axis
25.6	93.3	19.2 / 41.3	1059+ 350 Patient	3.9	15.2	14.2

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.6	1.0 0.0	1.5	3.2 2.6	2.40 1.04	1.34 1.74	0.54 0.70

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test

UUT- 7 GOC6.6 Console

MANUFACTURER:	General Electric Company
IDENTIFICATION:	Model No.: 5212920-150
DESCRIPTION:	System component of the Discovery CT750 HD System
MOUNTING:	Floor mounted using (4) – 3/8" dia. socket head bolts through GEHC supplied mounting brackets to aluminum interface plate.

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vertical-Axis
48.74	46.54 / 54.74	26.7 / 34.7	405	6.2	17.3	22.9

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.6	1.0 0.0	1.5	3.2 2.6	2.40 1.04	1.34 1.74	0.54 0.70

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test

UUT- 8 Power Distribution Unit

MANUFACTURER:	GE Hangwei Medical Systems CO., LTD
IDENTIFICATION:	Model No.: 2326492-61
DESCRIPTION:	System component of the Optima CT580 System
MOUNTING:	Floor mounted using (4) – 3/8" dia. socket head bolts through GEHC supplied mounting brackets to aluminum interface plate.

PROPERTIES:

DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis
27.6	21.7	41.8	796+22 brackets	15.7	19.9	45

SHAKE TABLE TEST PARAMETERS

CODE	TEST CRITERIA	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2013	ICC-ES AC156-12	2.0 2.6	1.0 0.0	1.5	3.2 2.6	2.40 1.04	1.34 1.74	0.54 0.70

Unit maintained structural integrity and functionality after the ICC-ES AC 156 test