



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP – 0423 – 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: Revolution Discovery CT System

Product Type: SEE ATTACHMENT 1

Product Model Number: SEE ATTACHMENT 1

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

General Description: System components of multiple-component medical diagnostic imaging systems. Special Seismic Certification is limited to components of the Revolution Discovery CT System identified in Attachment 1.

Mounting Description: Rigid floor 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: (909) 606-7622 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: January 23, 2014

Title: Principal Engineer Company Name: EASE LLC

"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 10/21/14)



OSHPD

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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

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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) = See attachment 1

S_{DS} (Design spectral response acceleration at short period, g) = See attachment 1

a_p (In-structure equipment or component amplification factor) = See attachment 1

R_p (Equipment or component response modification factor) = See attachment 1

Ω_0 (System overstrength factor) = 1½ (Gantry & Tables) / 2½ (All others)

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = See attachment 1

Equipment or Component Natural Frequencies (Hz) = See attachment 2

Overall dimensions and weight (or range thereof) = See attachment 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) = _____

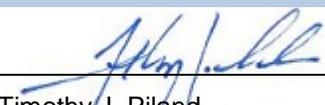
Tank(s) designed in accordance with ASME BPVC, 2010: Yes No

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: March 24, 2015

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:

Manufacturer		GE HEALTHCARE												
System		REVOLUTION DISCOVERY CT SYSTEM												
COMPONENT	MODEL NUMBER	APPROX. DIMENSIONS (IN.)			MAX. WT. (LB.)	MOUNT	BASIS ^[1]	F _p /W _p	S _{DS}	z/h	a _p	R _p	Ω ₀	
		W	D	H										
GANTRIES														
Revolution Discovery CT (CT HDe4) Gantry	5232083-100	89.3	40.5	75.6	4095	Floor	UUT 12144101-1	2.40 1.13	2.0 2.5	1 0	1	1 ½	1 ½	
PATIENT TABLES														
GT1700V	5122080-11	25.6	93.3	19.2 / 41.2	1059 ^[2]	Floor	UUT 12112601-2	2.40 1.17	2.0 2.6	1 0	1	1 ½	1 ½	
GT1700 N9 ED3	5122080-4	25.6	93.3	19.2 / 41.2	1059	Floor	INT	2.40 1.13	2.0 2.5	1 0				
GT2000X	5380966	25.6	114.5	18.3 / 41.3	1288	Floor	INT							
GT2000 N9	5121647-3	25.6	114.5	19.2 / 41.3	1146	Floor	UUT 12140801-4							
GT2000 N9 ED3 Assy	5121647-4	25.6	114.5	18.3 / 41.3	1146	Floor	SAME							
CONSOLES														
Console Assembly – GOC6.6	5212920-150	48.74	46.54 / 54.74	26.7 / 34.7	405	Floor	UUT 12131201-1	1.50 1.17	2.0 2.6	1.0 0.0	2 ½	6	2 ½	
POWER DISTRIBUTION (PDU)														
PDU (NGPDU-61)	2326492-61	27.6	21.7	41.8	818	Floor	UUT 12131301-2	1.44 1.17	2.0 2.6	1 0	1	2 ½	2 ½	
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. Requires the use of brackets/mounting assemblies present during testing unless otherwise noted.													
Notes	<ol style="list-style-type: none"> BASIS: <ul style="list-style-type: none"> 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. 1700V Patient Table weight does not include the 350 lb. simulated patient load present during testing. GT 2000 Patient Table weight does not include the 550 lb. simulated patient load present during testing. All components listed above are manufactured by GE Healthcare unless otherwise noted. 													

ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT 12144101-1 Revolution Discovery CT Gantry (CT HDe4)									
MANUFACTURER: GE Healthcare									
IDENTIFICATION: Model No.: 5232083-100									
Serial No.: STOENG037G									
DESCRIPTION: System component of Revolution Discovery CT System									
MOUNTING: Floor mounted using (4) - 5/8" dia GR 8 bolts through leveling feet.									
PROPERTIES:									
DIMENSIONS (in.)					LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)		Front-Axis	Side-Axis	Vert-Axis		
89.3	40.5	75.6	4095		5.0	7.1	15.7		
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 12112601-2 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: Rigid Base (Floor) mounted using (4) - 5/8" dia. hex head bolts to interface plate.									
PROPERTIES:									
DIMENSIONS (in.)					LOWEST RESONANT FREQUENCY (Hz.)				
Width	Depth	Height	Weight (lb.)		Transverse-Axis	Longitudinal-Axis	Vertical-Axis		
25.6	93.3	19.2 / 41.2	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	2.4 1.04	1.34 1.74	0.54 0.70	
Unit maintained structural integrity and functionality after the ICC-ES AC 156 test									

ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT 12140801-4 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 bolts w/ GEHC supplied patient table foot assembly.								
PROPERTIES:								
DIMENSIONS (in.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)			
Width	Depth	Height			Front-Axis	Side-Axis	Vertical-Axis	
25.6	114.5	19.2 / 41.3	1146+550 Patient	7.1	2.7	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 12131201-1 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.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)			
Width	Depth	Height			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								

ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT 12131301-2 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.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)			
Width	Depth	Height	Side-Axis		Front-Axis	Vertical-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								