APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0493 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Siemens Healthcare GmbH

Manufacturer's Technical Representative: Dr. Damian Kopyto

Mailing Address: Siemensstr. 3, D-91301 Forchheim, Germany

Telephone: +499191 188778 Email: damian.kopyto@siemens.com

Product Information

Product Name: Multitom Rax System

Product Type: Robotic X-ray medical imaging system

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

General Description: Multiple component system for producing X-Ray medical images for a wide variety of medical diagnostic results

Mounting Description: Multiple – Mix of rigid floor mounting, combined rigid floor / wall mounting, and ceiling mounted. See attachment.

Applicant Information

Applicant Company Name: W.E. Gundy & Associates, Inc.

Contact Person: Travis Soppe, SE

Mailing Address: 250 Bobwhite Ct, Suite 100, Boise, ID 83706

Telephone: (208) 342-5898 Ext. 115 Email: tsoppe@wegai.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: Travis Soppe Date: 12-08-2016

Title: Vice President Company Name: W.E. Gundy & Associates, Inc.

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

Company Name: W.E. Gundy & Associates, Inc.

Name: Travis Soppe, SE California License Number: S6115

Mailing Address: 205 Bobwhite Ct, Suite 100, Boise, ID 83706

Telephone: (208) 342-5898 Ext. 115 Email: tsoppe@wegai.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: IABG mbH

Contact Name: Dr. Steffen Roedling

Mailing Address: Einsteinstrasse 20, Ottobrunn, Germany D-85521

Telephone: +49 (0) 89 / 6088-2052 Email: roedling@iabg.de

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = Multiple, See attachment

S_{DS} (Design spectral response acceleration at short period, g) = 2.2 for z/h = 1.0 and 2.5 for z/h = 0

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

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

Ω_0 (System overstrength factor) = Multiple, See attachment

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0 at S_{DS} = 2.2g and 0 at S_{DS} = 2.5g

Equipment or Component Natural Frequencies (Hz) = Multiple, See attachment

Overall dimensions and weight (or range thereof) = Multiple, 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): Certified System Matrix, UUT Summary Sheets, Subcomponent Certification Letter

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

Signature: _____ Date: May 17, 2017

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): _____

SIEMENS HEALTHCARE GmbH
SPECIAL SEISMIC CERTIFICATION
CERTIFIED SYSTEM AND COMPONENTS

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Manufacturer: Siemens Healthcare GmbH

System: Multitom Rax

System Component	Siemens Part Number	Dimensions (in)			Weight (lb)	Mounting	UUT
		Width	Length	Height			
Tube Ceiling Stand 3D V	07042075	44.8	34.3	33.5-118.6[2)]	585	ceiling	UUT-1
Detector Ceiling Stand 3D V	07042026	32.4	72.6	41.3-124.2[2)]	546	ceiling	UUT-2
RF Table / Tabletop	10092902 10882788	29.5	125.5	19.7-37.6[3)]	668.8[3)]	floor	UUT-3
Generator Polvdoros F80-2	10096925	31.5	17.1	86.7	862	floor/wall	UUT-4
PC (W550)	11105103	13.4	27.4	22.8	90	floor	UUT-6ab
FLC PC (W550 RAD)	11105102	13.4	27.4	22.8	87	floor	UUT-7ab

[1)] All components are manufactured by Siemens Healthcare GmbH unless noted.The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component within the tested units.

[2)] Tube and Detector were subjected to two tests: the first test was performed in the normal operating position of 63in and the second test was performed with the extended position of 90.5in (both measured to focal point).

[3)] Weight does not included simulated patient weight. The patient table was subjected to two tests; the first test was performed in the extended mid-possition 29.5in with 308lbs simulated patient weight and the second test was performed in the bottom possition 20.5in with 529lb simulated patient weight.

SEISMIC CERTIFICATION LIMITS

System Component	Code	S_{DS} (g)	z / h	I_P	a_P	R_P	Ω_0	F_P / W_P
Tube Ceiling Stand	CBC 2016 ASCE7-10	2.2	1.0	1.50	2.5	2.5	2.0	3.96
		2.5	0					1.50
Detector Ceiling Stand		2.2	1.0	1.50	2.5	2.5	2.0	3.96
		2.5	0					1.50
RF Table / Tabletop		2.2	1.0	1.50	1.0	1.5	1.5	2.64
		2.5	0					1.13
Generator Polvdoros F80-2		2.2	1.0	1.50	2.5	6.0	2.0	1.65
		2.5	0					1.13
PC (W550)		2.2	1.0	1.50	1.0	2.5	2.0	1.58
		2.5	0					1.13
FLC PC (W550 RAD)		2.2	1.0	1.50	1.0	2.5	2.0	1.58
		2.5	0					1.13

UUT-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Runner rails bolt to unistrut with 2 - M10 screws at each intersecting location

Manufacturer: Siemens Healthcare GmbH

Component: Tube Ceiling Stand	**Model / Serial Number:** 07042075 / 1001
UUT Function: Digital system used for making X-ray exposures of the body	
UUT Description: Component of Multitom Rax System	
Test Location: IABG Test Laboratory, Germany	**Test Date:** June 2016

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Width[1)]	Depth[1)]	Tested Extension[2)]	FB	SS	V
585	44.8"	34.3"	63.0"	~~4.4~~	~~3.7~~	~~4.9~~
			90.5"	~~3.4~~	~~2.5~~	~~4.6~~

[1)] The UUT is operable in both horizontal directions along the track that mounts to the ceiling adapter. The system is uniformly connected to the ceiling therefore horizontal placement has no affect on seismic loading.

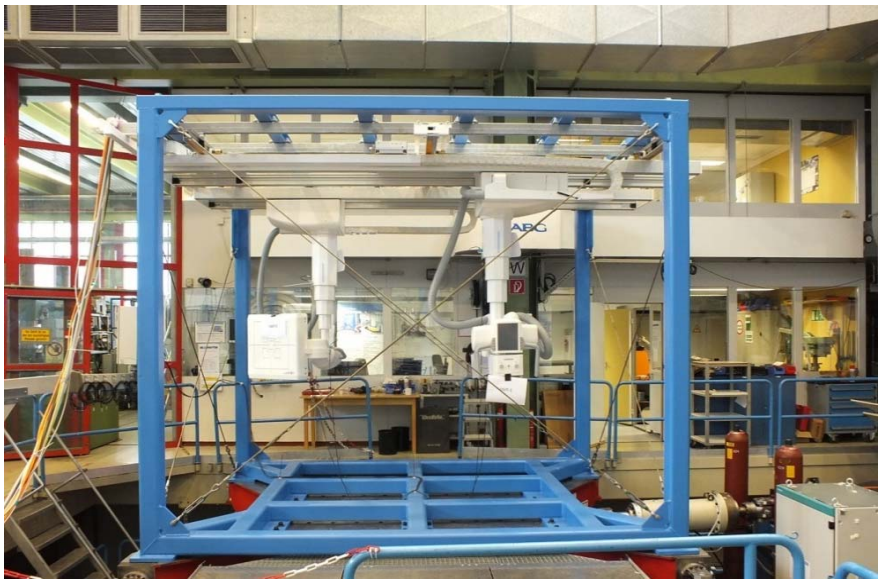
[2)] The UUT was subjected to two tests: the first test was performed in the normal operating extended position of 63.0in (measured to focal point) and the second test was performed with the extended position of 90.5in (measured to focal point).

SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

UUT-2	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Runner rails bolt to unistrut with 2 - M10 screws at each intersecting location



Manufacturer: Siemens Healthcare GmbH

Component: Detector Ceiling Stand	**Model / Serial Number:** 07042026 / 1001

UUT Function: Digital system used for making X-ray exposures of the body

UUT Description: Component of Multitom Rax System

Test Location: IABG Test Laboratory, Germany	**Test Date:** June 2016

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Width[1)]	Depth[1)]	Tested Extension[2)]	FB	SS	V
546	32.4"	72.6"	63.0"	~~4.3~~	~~3.3~~	~~3.1~~
			90.5"	~~3.4~~	~~2.6~~	~~3.7~~

[1)] The UUT is operable in both horizontal directions along the track that mounts to the ceiling adapter. The system is uniformly connected to the ceiling therefore horizontal placement has no affect on seismic loading.

[2)] The UUT was subjected to two tests: the first test was performed in the normal operating extended position of 63.0in (measured to focal point) and the second test was performed with the extended position of 90.5in (measured to focal point).

SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

UUT-3	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid Floor mounted with 6 - M12 bolts

Manufacturer: Siemens Healthcare GmbH

Component: RF Table / Tabletop	**Model/Serial Number:** 10092902 / 1001 and 10882788 / 1002

UUT Function: Motorized table intended to hold a patient

UUT Description: Component of Multitom Rax System

Test Location: IABG Test Laboratory, Germany	**Test Date:** June 2016

UUT PROPERTIES

Weight (lb) with Patient	Dimensions (inches)			Natural Fequency (Hz)		
	Width	Depth	Tested Height[1)]	FB	SS	V
977	29.5"	125.5"	29.5"	18.7	4.0	18.4
1,197	29.5"	125.5"	20.5"	24.0	4.0	12.4

[1)] Table was subjected to two tests; the first test was performed in the normal operating position of 29.5in with a 308lbs patient weight and the second test was performed in the bariatric normal operating position of 20.5in with a 529lb patient weight.

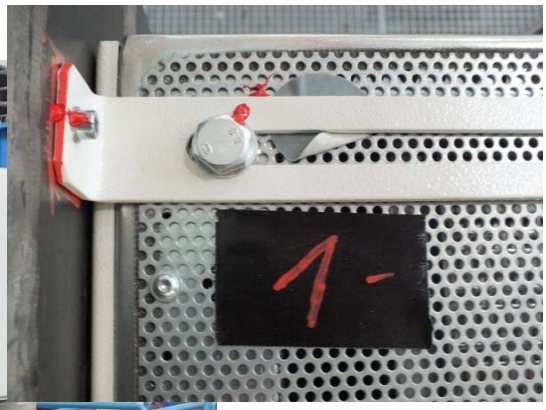
SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained fuctional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-4	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor/Wall mount with 4 - M12 bolts to floor and 2 - M6 bolts to wall fixture



Manufacturer: Siemens Healthcare GmbH

Component: Generator Polydoros F80-2	**Model / Serial Number:** 10096925 / 2981

UUT Function: Power distribution to Multitom Rax

UUT Description: Component of Multitom Rax System. UUT includes SCALANCE W700 Wi-Fi Access Point (model #10860657) subcomponent mounted to the top corner of enclosure.

Test Location: IABG Test Laboratory, Germany	**Test Date:** June 2016

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
664	31.5"	17.1"	86.7"	NA	NA	NA

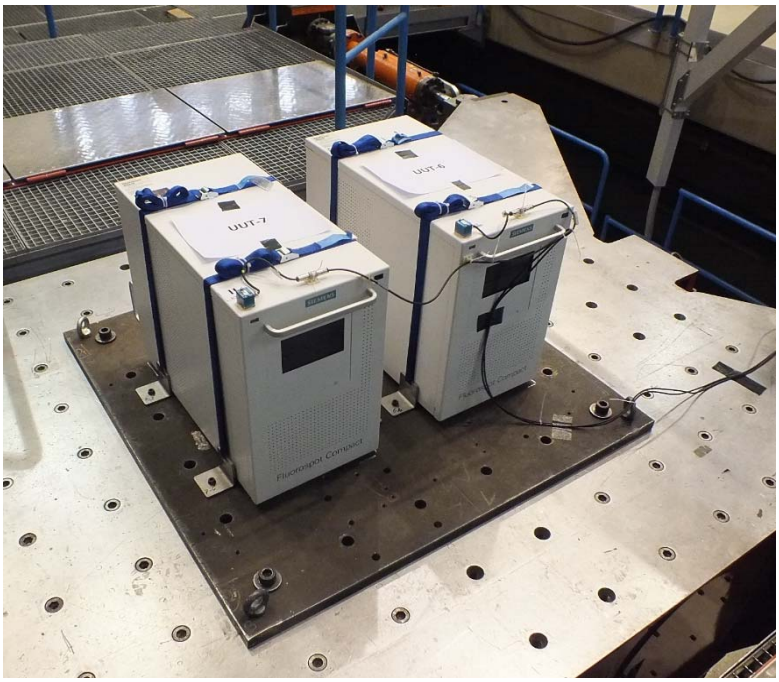
SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained fuctional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-6a	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration A. Siesmic restraint kit includes two 1" wide hand tightened cam buckle straps (830lb WLL) looped thru angle brackets positioned on each side of the unit. The four angle brackets are attached to the table with individual M10 bolts.



Manufacturer: Siemens Healthcare GmbH

Component: PC (W550)	**Model / Serial Number:** 11105103 / 1185
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of Multitom Rax System	
Test Location: IABG Test Laboratory, Germany	**Test Date:** January 2017

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
90	13.4"	27.4"	22.8"	24	18.6	>33

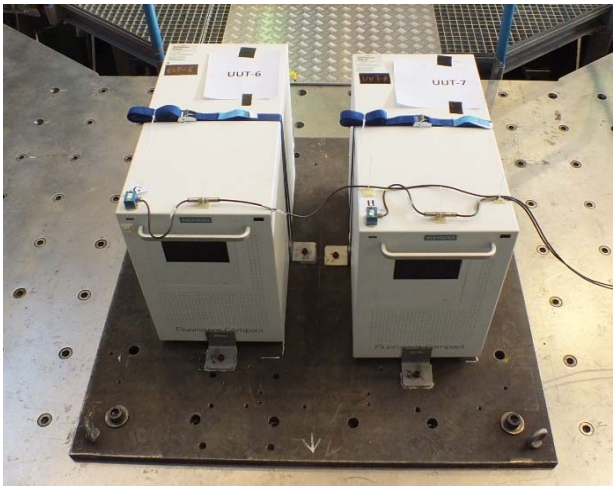
SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained fuctional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-6b	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration B. Siesmic restraint kit includes one 1" wide hand tightened cam buckle strap (830lb WLL) looped thru angle brackets positioned on each side of the unit. Angle brackets are also positioned on the front and back of the unit. All four angle brackets are attached to the table with individual M10 bolts.



Manufacturer: Siemens Healthcare GmbH

Component: PC (W550)	**Model / Serial Number:** 11105103 / 1185
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of Multitom Rax System	
Test Location: IABG Test Laboratory, Germany	**Test Date:** January 2017

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
90	13.4"	27.4"	22.8"	27.5	17.7	>33

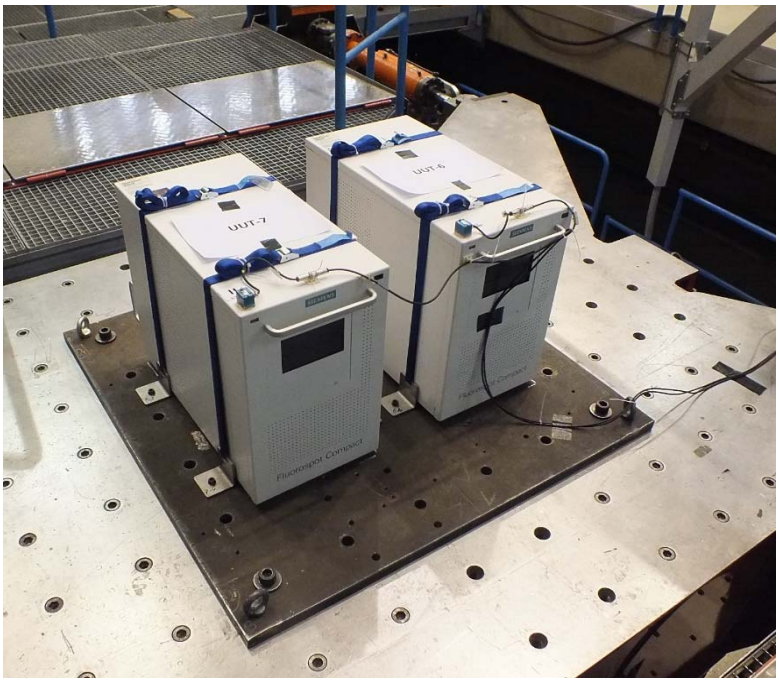
SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained fuctional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-7a	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration A. Siesmic restraint kit includes two 1" wide hand tightened cam buckle straps (830lb WLL) looped thru angle brackets positioned on each side of the unit. The four angle brackets are attached to the table with individual M10 bolts.



Manufacturer: Siemens Healthcare GmbH

Component: FLC PC (W550 RAD)	**Model / Serial Number:** 11105102 / 1162
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of Multitom Rax System	
Test Location: IABG Test Laboratory, Germany	**Test Date:** January 2017

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
87	13.4"	27.4"	22.8"	27.1	18.1	>33

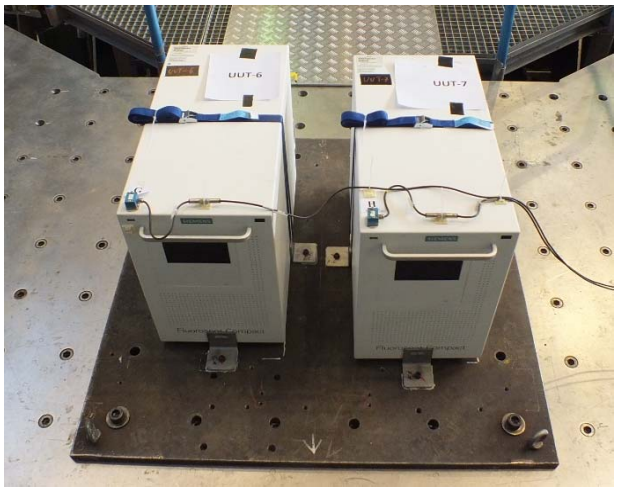
SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained fuctional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT-7b	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration B. Siesmic restraint kit includes one 1" wide hand tightened cam buckle strap (830lb WLL) looped thru angle brackets positioned on each side of the unit. Angle brackets are also positioned on the front and back of the unit. All four angle brackets are attached to the table with individual M10 bolts.



Manufacturer: Siemens Healthcare GmbH

Component: FLC PC (W550 RAD)	**Model / Serial Number:** 11105102 / 1162
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of Multitom Rax System	
Test Location: IABG Test Laboratory, Germany	**Test Date:** January 2017

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Width	Depth	Height	FB	SS	V
87	13.4"	27.4"	22.8"	31.1	16.4	>33

SEISMIC TEST PARAMETERS

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	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained fuctional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.