



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION

**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

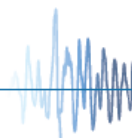
Telephone: (208) 342-5898 Ext. 115 Email: [tsoppe@wegai.com](mailto:tsoppe@wegai.com)

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:  Date: 12-08-2016

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

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION**

**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**

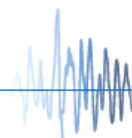
- ☐ Supports and attachments are preapproved under OPM-  
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- ☒ Supports and attachments are not preapproved

**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





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**Seismic Parameters**

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

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 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

$\Omega_0$  (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) = \_\_\_\_\_

$\Omega_0$  (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): Certified System Matrix, UUT Summary Sheets, Subcomponent Certification Letter

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

Signature: Ali Sumer Date: May 17, 2017

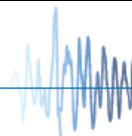
Print Name: Ali Sumer Title: DSE

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

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

\_\_\_\_\_

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"



**SIEMENS HEALTHCARE GmbH**  
**SPECIAL SEISMIC CERTIFICATION**  
**CERTIFIED SYSTEM AND COMPONENTS**



**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 <sup>2)</sup>	585	ceiling	UUT-1
Detector Ceiling Stand 3D V	07042026	32.4	72.6	41.3-124.2 <sup>2)</sup>	546	ceiling	UUT-2
RF Table / Tabletop	10092902 10882788	29.5	125.5	19.7-37.6 <sup>3)</sup>	668.8 <sup>3)</sup>	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

<sup>1)</sup> 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.

<sup>2)</sup> 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).

<sup>3)</sup> Weight does not include simulated patient weight. The patient table was subjected to two tests; the first test was performed in the extended mid-position 29.5in with 308lbs simulated patient weight and the second test was performed in the bottom position 20.5in with 529lb simulated patient weight.

**SEISMIC CERTIFICATION LIMITS**

System Component	Code	S <sub>DS</sub> (g)	z / h	I <sub>P</sub>	a <sub>P</sub>	R <sub>P</sub>	Ω <sub>0</sub>	F <sub>P</sub> / W <sub>P</sub>
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



**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 Frequency (Hz)		
	Width <sup>1)</sup>	Depth <sup>1)</sup>	Tested Extension <sup>2)</sup>	FB	SS	V
585	44.8"	34.3"	63.0"	<del>4.4</del>	<del>3.7</del>	<del>4.9</del>
			90.5"	<del>3.4</del>	<del>2.5</del>	<del>4.6</del>

<sup>1)</sup> 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.

<sup>2)</sup> 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 <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 2016 / ICC-ES AC156	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

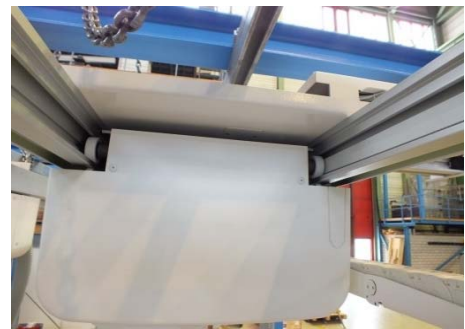
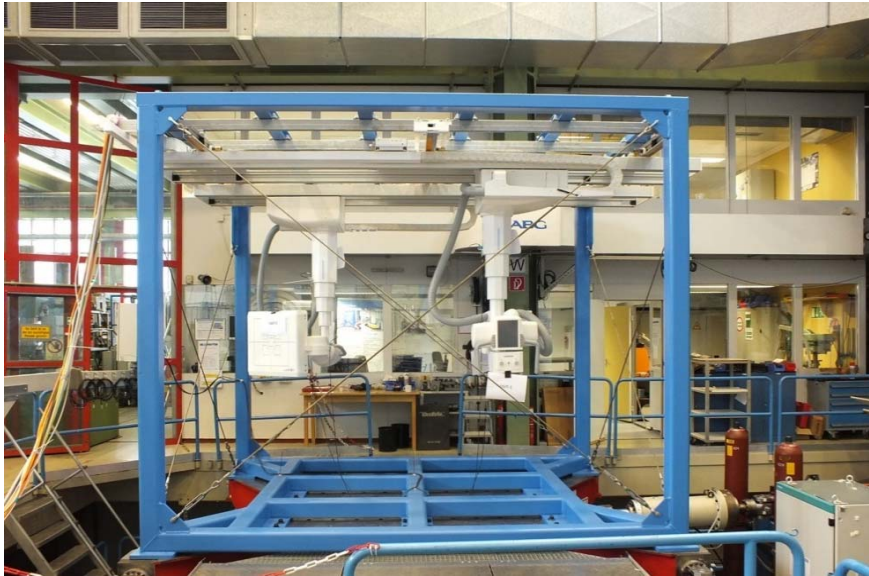


**UUT-2**

# UNIT UNDER TEST (UUT) SUMMARY SHEET



**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 Frequency (Hz)		
	Width <sup>1)</sup>	Depth <sup>1)</sup>	Tested Extension <sup>2)</sup>	FB	SS	V
546	32.4"	72.6"	63.0"	<del>4.3</del>	<del>3.3</del>	<del>3.1</del>
			90.5"	<del>3.4</del>	<del>2.6</del>	<del>3.7</del>

<sup>1)</sup> 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.

<sup>2)</sup> 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 <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 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****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 Frequency (Hz)		
	Width	Depth	Tested Height <sup>1)</sup>	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

<sup>1)</sup> 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 <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 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 functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

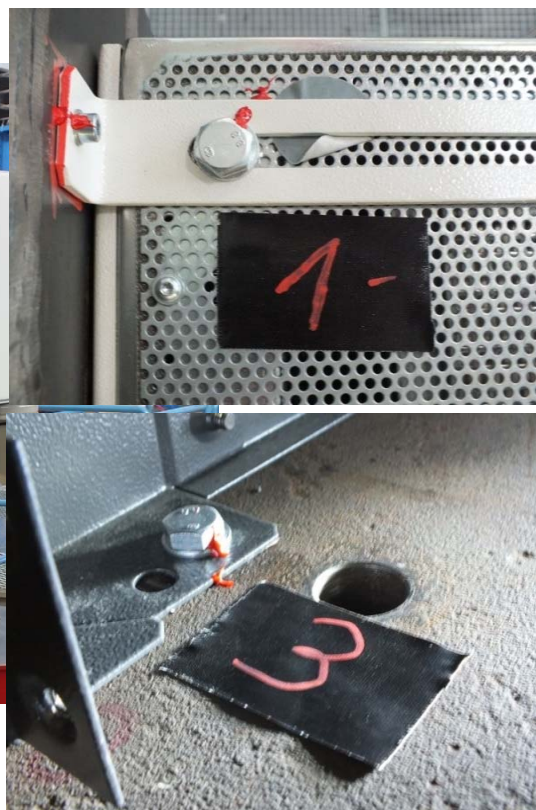


**UUT-4**

# UNIT UNDER TEST (UUT) SUMMARY SHEET



**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 Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
664	31.5"	17.1"	86.7"	NA	NA	NA

## SEISMIC TEST PARAMETERS

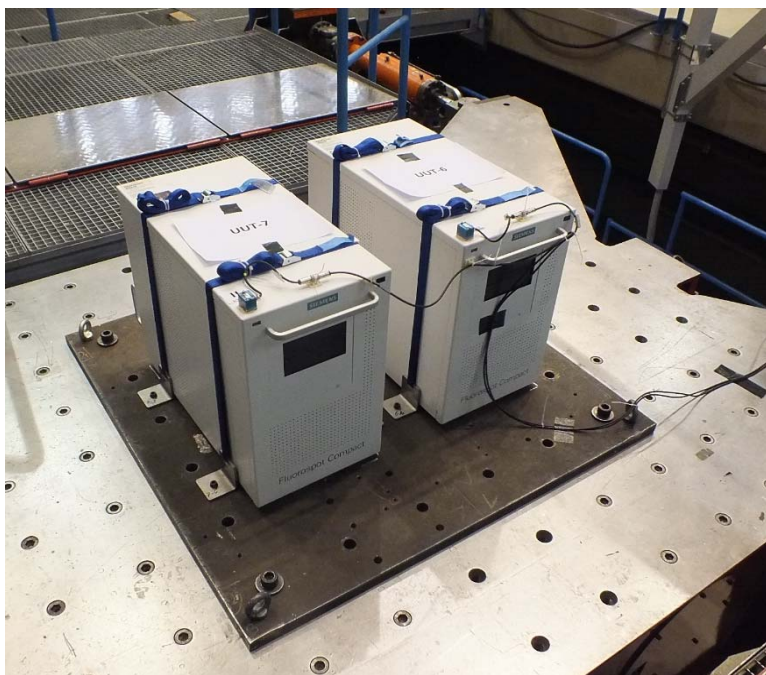
Building Code / Test Criteria	$S_{DS}$ (g)	$z/h$	$I_P$	$A_{FLX-H}$ (g)	$A_{RIG-H}$ (g)	$A_{FLX-V}$ (g)	$A_{RIG-V}$ (g)
CBC 2016 / ICC-ES AC156	2.20	1.0	1.5	3.52	2.64		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional 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**

**Mounting Details:** Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration A. Seismic 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 Frequency (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 functional 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



**Mounting Details:** Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration B. Seismic 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 Frequency (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

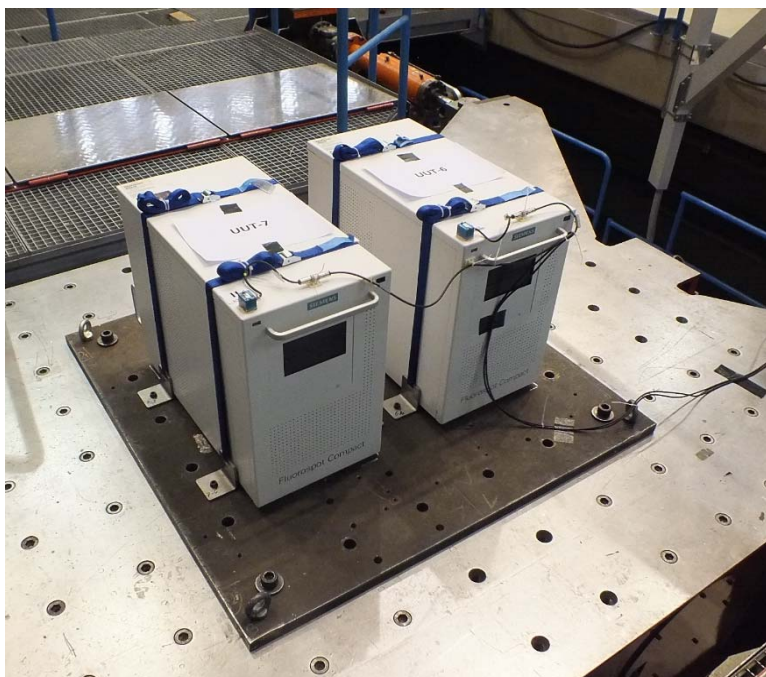
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

**UUT-7a**

## UNIT UNDER TEST (UUT) SUMMARY SHEET



**Mounting Details:** Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration A. Seismic 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 Frequency (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 functional 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**

**Mounting Details:** Rigid Floor mounting using Siemens provided seismic restraint kit for Configuration B. Seismic 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 Frequency (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 functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.