APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0421

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Siemens Healthcare GmbH Manufacturer's

Technical Representative: Stephan Maurer

Mailing Address: Siemensstr. 3, 91301 Forchheim, Germany

Telephone: +49 (9191) 18-8835 Email: Stephan.sm.maurer@siemens-healthineers.com

Product Information

Product Name: CT Systems

Product Type: NA

Product Model Number: See Attachment 1, Table 1

General Description: Multiple component system for the provision of Computed Tomography medical diagnostic applications

Mounting Description: Rigid floor mounted and combined rigid floor/wall mounted

Tested Seismic Enhancements: None

Applicant Information

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

Contact Person: Travis Soppe

Mailing Address: 1199 Shoreline Drive, Boise, ID 83702

Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Title: President

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

Company Name: W.E. GUNDY & ASOCIATES INC.

Name: Travis Soppe California License Number: S6115

Mailing Address: P.O. Box 9121, Boise, ID 83707

Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Brady Richard

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

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

Seismic Parameters

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

S_{DS} (Design spectral response acceleration at short period, g) = 2.0

a_p (Amplification factor) = See attachments

R_p (Response modification factor) = See attachments

Ω_0 (System overstrength factor) = See Attachment

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See attachments

Overall dimensions and weight = See attachments

OSHPD Approval (For Office Use Only) - Approval Expires on 12/31/2025

Date: 7/12/2021

Name: Mohammad Aliaari Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.0 z/h = 1

Condition of Approval (if applicable):

TABLE 1	SIEMENS HEALTHCARE GmbH SPECIAL SEISMIC CERTIFICATION CERTIFIED SYSTEM AND COMPONENTS	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Manufacturer: Siemens Healthcare GmbH

System: SOMATOM Force CT

System Component[1)]	Siemens Part Number	Dimensions (in)			Weight (lb)	Mounting	UUT
		Width	Depth	Height			
Gantries							
SOMATOM Force	10742327	94.5	46.5	78.4	5880	floor	UUT-1
Patient Tables							
PHS-5	10742323	29.5	100.5 - 179.5	24.3 - 41.7	1066	floor	UUT-2[2]
MPT4	10742324	27.8	99.5 - 179.5	23.0 - 38.5	1388	floor	UUT-3[2]
Power Distribution Cabinet							
Power Distribution Cabinet	10757110	47.2	29.5	75.2	2027	floor/wall	UUT-4
Image Control and Reconstruction							
Image Control System	10864203	7.3	18.9	16.9	34	floor	UUT-5
Image Reconstruction System	10742951	12.2	27.0	19.7	86	floor	UUT-6

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

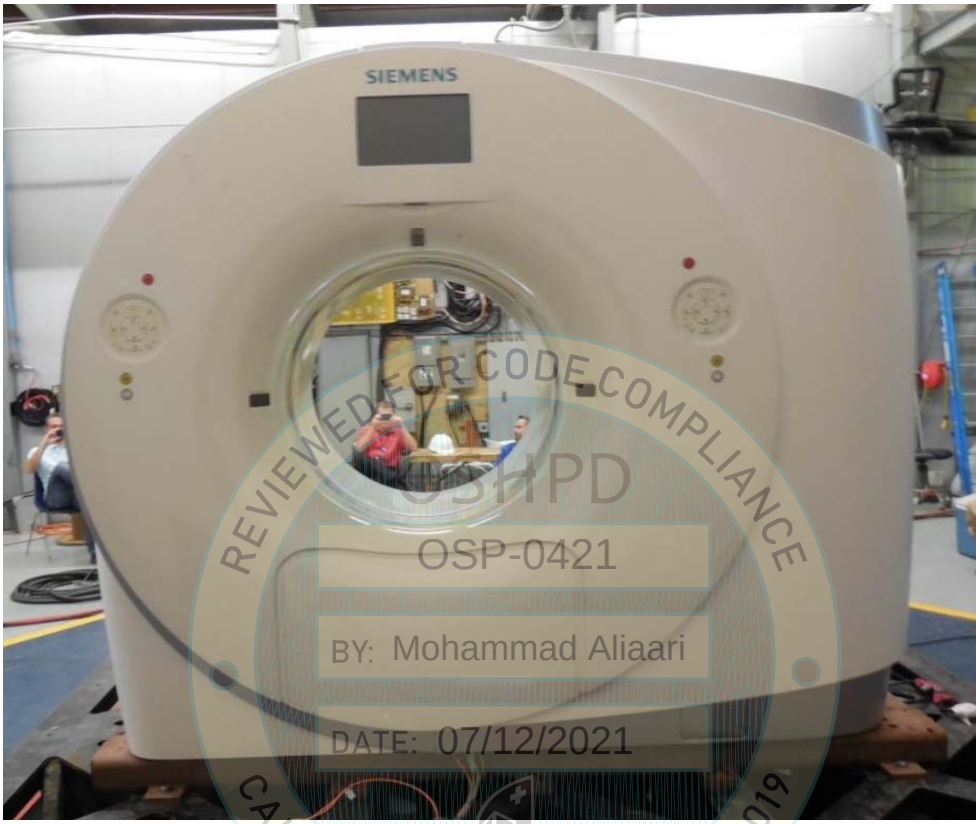
[2] Patient table weight does not include simulated patient weights of 440lb.

SEISMIC CERTIFICATION LIMITS

System Component	Code	S_{DS} (g)	z / h	I_P	a_P	R_P	Ω_0	F_P / W_P
Gantries	CBC 2019	2.0	1.0	1.50	1.0	1.5	1.5	2.40
Patient Tables	CBC 2019	2.0	1.0	1.50	1.0	1.5	1.5	2.40
Power Distribution Cabinet	CBC 2019	2.0	1.0	1.50	2.5	6.0	2.0	1.50
Image Control and Reconstruction	CBC 2019	2.0	1.0	1.50	1.0	2.5	2.0	1.44

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

Mounting Details: Rigid floor mounted with 4 - 5/8" grade 8 bolts



Manufacturer: Siemens Healthcare GmbH	**Test Location:** Environmental Testing Laboratory
Component: SOMATOM Force Gantry	**Test Date:** November 2014
Model Number: 10742327	**Report Number:** SQ35-1423-01
UUT Function: Continuous rotating detector for high-resolution data acquisition	
UUT Description: Component of the SOMATOM Force CT system - water cooled	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
5,880	94.5	46.5	78.4	6.7	11.2	10.2

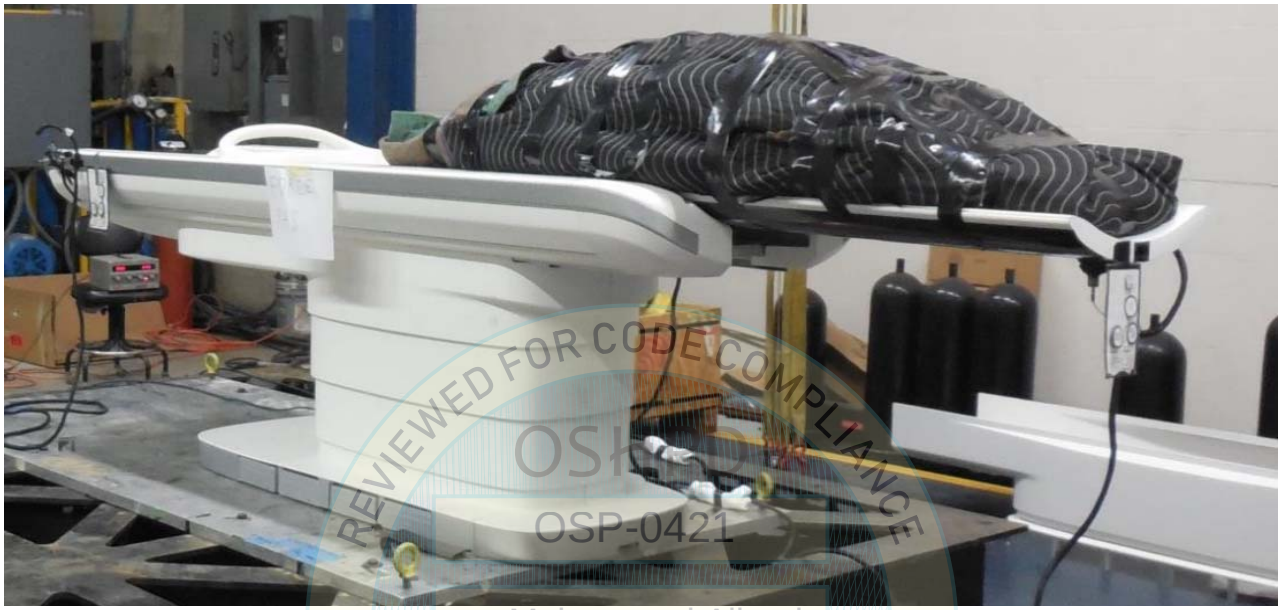
SEISMIC TEST PARAMETERS

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 2019 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

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

Mounting Details: Rigid floor mounted with 4 - 5/8" grade 8 bolts.



Manufacturer: Siemens Healthcare GmbH	**Test Location:** Environmental Testing Laboratory
Component: PHS-5 Patient Table	**Test Date:** November 2014
Model Number: 10742323	**Report Number:** SQ35-1423-01
UUT Function: Motorized patient table	
UUT Description: Component of SOMATOM CT Systems	

UUT PROPERTIES

Weight (lb) with Patient*	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,506	29.5	100.5 - 179.5	24.3 - 41.7	2.9	2.6	10.7

*The patient table moves vertically and horizontally to accommodate different patients and procedures. The system was tested in the normal vertical operating position, with the table top extended, and a total simulated patient weight of 440lbs.

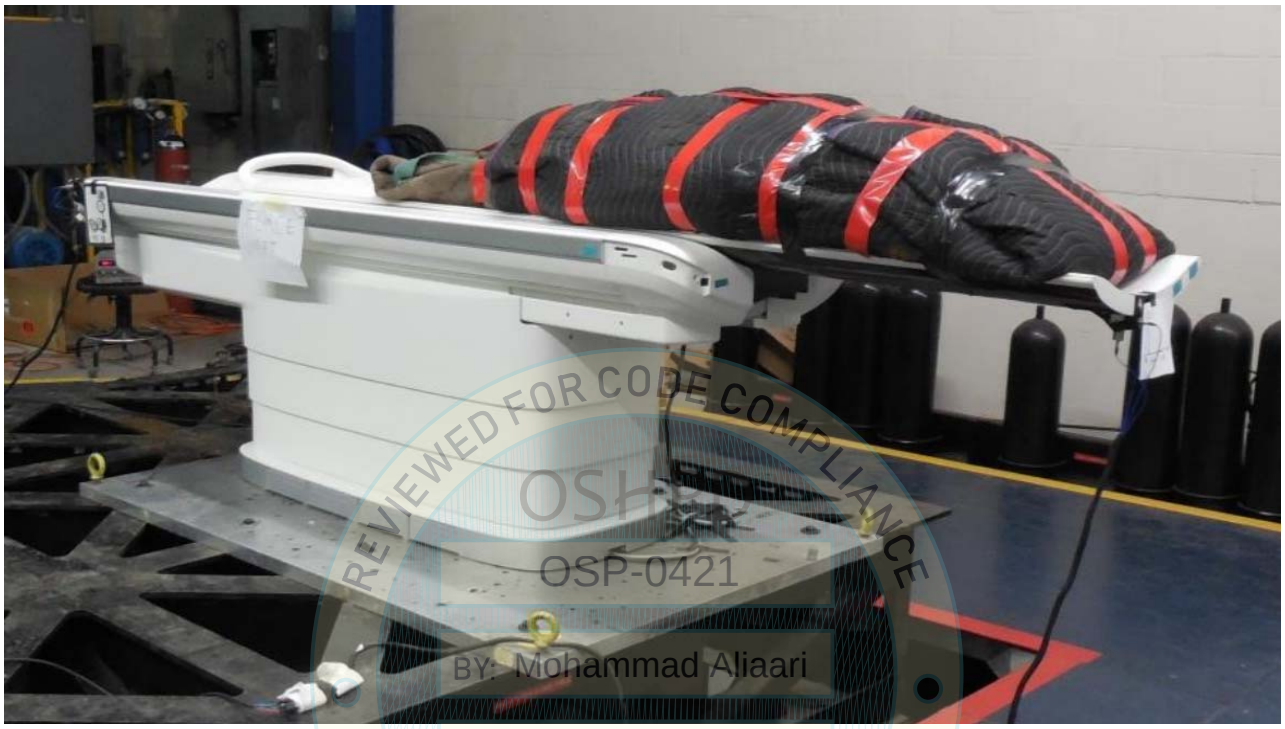
SEISMIC TEST PARAMETERS

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 2019 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

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

Mounting Details: Rigid floor mounted with 4 - 5/8" grade 8 bolts.



Manufacturer: Siemens Healthcare GmbH	**Test Location:** Environmental Testing Laboratory
Component: MPT4 Patient Table	**Test Date:** November 2014
Model Number: 10742324	**Report Number:** SQ35-1423-01
UUT Function: Motorized patient table	
UUT Description: Component of SOMATOM CT Systems	

UUT PROPERTIES

Weight (lb) with Patient*	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
1,828	27.8	99.5 - 179.5	23.0 - 38.5	2.7	3.3	7.7

*The patient table moves vertically and horizontally to accommodate different patients and procedures. The system was tested in the normal vertical operating position, with the table top extended, and a total simulated patient weight of 440lbs.

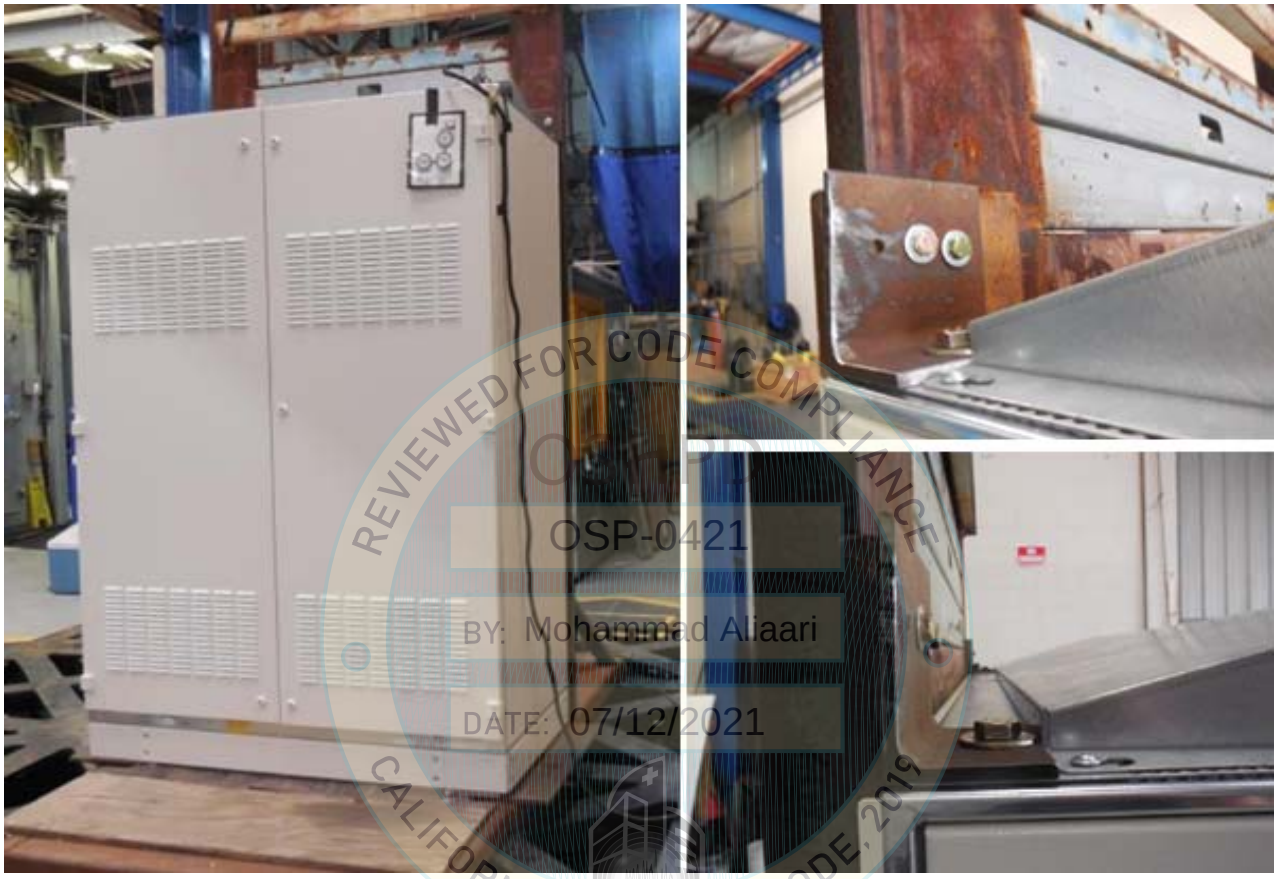
SEISMIC TEST PARAMETERS

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 2019 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

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

Mounting Details: Rigid wall mounted at top back side of unit with 4 - 5/16" bolts and rigid floor mounted with 2 - 1/2" grade 8 bolts. Wall mount brackets constructed of 4" long L4x2.5x0.25 angles that bolt thru the short leg to the UUT with a single 1/2" grade 8 bolt.



Manufacturer: Siemens Healthcare GmbH	**Test Location:** Environmental Testing Laboratory
Component: Power Distribution Unit	**Test Date:** November 2014
Model Number: 10757110	**Report Number:** SQ35-1423-01
UUT Function: Power distribution to CT system	
UUT Description: Component of SOMATOM CT Systems	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
2,027	47.2	29.5	75.2	13.2	12.7	>33

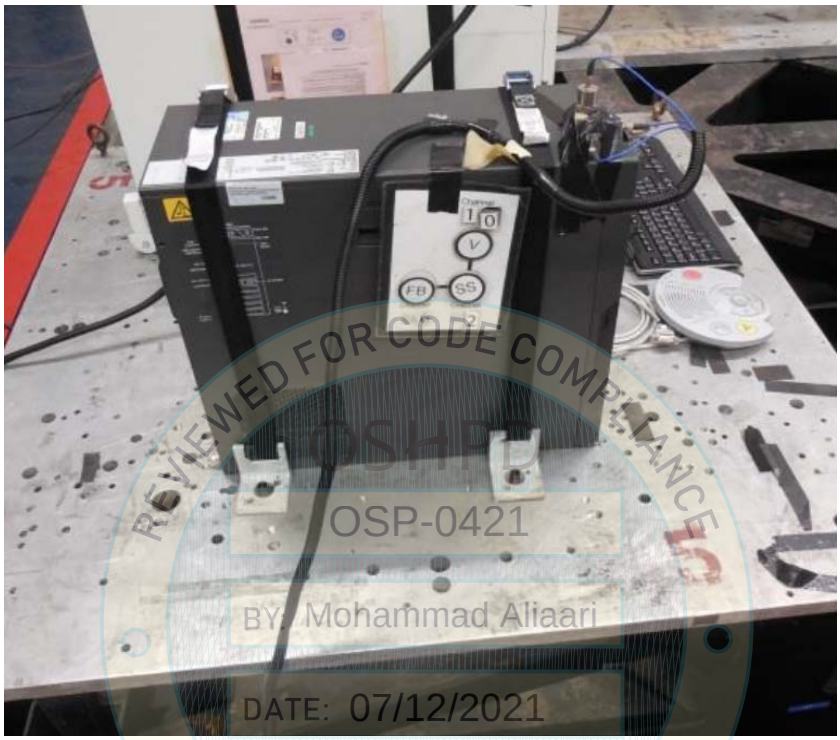
SEISMIC TEST PARAMETERS

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 2019 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

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-5	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Rigid floor mounted with two hand-tightened, 1" wide straps (200lb WLL), thru L2.5x2.5x1/4" x 2.5" brackets positioned on either side of the unit (spaced 12" apart). The four angle brackets are attached to the table with (1) 3/8" bolt at each bracket location.



Manufacturer: Siemens Healthcare GmbH	**Test Location:** Environmental Testing Laboratory
Component: Image Control System	**Test Date:** November 2014
Model Number: 10864203	**Report Number:** SQ35-1423-01
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of SOMATOM CT Systems	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
34	7.3	18.9	16.9	>33	30.2	>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 2019 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

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

Mounting Details: Rigid floor mounted with two hand-tightened, 1" wide straps (200lb WLL), thru L2.5x2.5x1/4" x 2.5" brackets positioned on either side of the unit (spaced 12" apart). The four angle brackets are attached to the table with (1) 3/8" bolt at each bracket location.

Manufacturer: Siemens Healthcare GmbH	**Test Location:** Environmental Testing Laboratory
Component: Image Reconstruction System (IRSmx4)	**Test Date:** November 2014
Model Number: 10742951	**Report Number:** SQ35-1423-01
UUT Function: Computer for data acquisition, image reconstruction, and processing	
UUT Description: Component of SOMATOM CT Systems	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Width	Depth	Height	FB	SS	V
86	12.2	27.0	19.7	17.5	14.6	>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 2019 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

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.