APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0716

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Siemens Healthcare GmbH

Manufacturer's Technical Representative: Yuan Peng

Mailing Address: Siemensstr 3, Forchheim, Forchheim 91301

Telephone: (49162) 578-7300 Email: yuan.peng@siemens-healthineers.com

Product Information

Product Name: X-Ray and Fluoroscopy Monitor Suspension Systems

Product Model Number(s): See attachment

Product Category: Fluoroscopy and Radiography Systems

Product Sub-Category: NA

General Description: Ceiling and Wall Mounted Monitor suspension systems for X-Ray and Fluoroscopy System.

Mounting Description: Several - See Certified Product Tables -

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: WE Gundy & Associates, Inc

Contact Person: Travis Soppe

Mailing Address: PO Box 9121, Boise, ID 83707

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: IABG TEST LABORATORY

Contact Person: Steffen Roedling

Mailing Address: Einsteinstrasse 20, Ottobrunn Bavaria 85521

Telephone: (49896) 088-2052 Email: roedling@iabg.de

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 2.40 at z / h = 1.0 and 1.13 at z / h = 0

S_{DS} (Design spectral response acceleration at short period, g) = 2.0 at z / h = 1.0 and 2.5 at z / h = 0

a_p (Amplification factor) = 1

R_p (Response modification factor) = 1.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 06/12/2031

Date: 6/12/2025

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

System: X-Ray and Fluoroscopy Systems | **Manufacturer:** Siemens Healthcare GmbH

System Component[1]	Siemens Part Number	Dimensions (in)			Weight (lb)	Mounting	UUT
		Depth	Width	Height			
Display Ceiling Suspension (DCS)							
Display Ceiling Suspension DCS-1 w/o TUI - 1 Monitor	11371813	20 - 101.0	98.8-140.4	38.2-79.9	154	ceiling	UUT_x-2
Display Ceiling Suspension DCS-1/1 with TUI - 1 Monitor	11371815	20 - 101.0	98.8-140.4	46.9-88.9	190	ceiling	interpolated
Display Ceiling Suspension DCS-2 w/o TUI - 2 Monitor	11371814	20 - 115.2	98.8-154.5	38.2-79.9	202	ceiling	interpolated
Display Ceiling Suspension DCS-2/1 with TUI - 2 Monitor	11371816	20 - 115.2	98.8-154.5	46.9-88.9	211	ceiling	UUT_x-1
Display Ceiling Suspension DCS-1/1 with TUI - 1 Monitor	11688715 11688593	22.4-101.0	104.2-170.4	46.9-88.9	221	ceiling	interpolated
Display Ceiling Suspension DCS-1 w/o TUI - 1 Monitor	11688592 11688593	22.4-79.2	104.2-170.4	37.0-82.4	265	ceiling	UUT_y-5
Display Wall Suspension (DWS)							
Display Wall Suspension DWS-1 - 1 Monitor	11371817	52 - 90.9	52.0-90.9	35.2-83.5	97	wall	UUT_x-4
Display Wall Suspension DWS-2 - 2 Monitor	11371818	63 - 105.1	63.0-105.1	43.1-85.0	110	wall	UUT_x-3

Notes:

[1] All components are manufactured by Siemens Healthcare GmbH. The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component within the tested units. TUI indicates the inclusion of the Siemens Touch User Interface.

[2] The units were tested at different times and the subscripts on the UUT's reference the following seismic certification test reports:
x = TAB3-PB-21-057-V2 / y = TA-B-006469-V1

SEISMIC CERTIFICATION LIMITS

System Component	Code	S_{DS} (g)	z / h	I_P	a_P	R_P	Ω_0	F_P / W_P
Display Ceiling Suspension	CBC 2022	2.0	1.0	1.50	1.0	1.5	2.0	2.40
		2.5	0					1.13
Display Wall Suspension	CBC 2022	2.0	1.0	1.50	1.0	1.5	2.0	2.40
		2.5	0					1.13

EQ13.3-1	Max	Min	Fp / Wp
2.40	4.80	0.90	2.40
1.00	6.00	1.13	1.13
2.40	4.80	0.90	2.40
1.00	6.00	1.13	1.13

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

Mounting Details: Rails and connecting parts of the Display Ceiling Suspension bolt with M10 bolts torqued at 36 ft-lb to unistrut grid spaced at 26.6" on center. The unistrut grid consisted of MURPO#150969 MPR-41/82/2.0 H-Profiles (Unistrut P1001 equivalent) anchored with 2 - M10 bolts with clamping claws (MURPO 157219) at each intersection to the ceiling fixture framing spaced at 23.6" on center.

Manufacturer: Siemens Healthcare GmbH	**Test Location:** IABG - Munich, Germany
Component: DCS-2/1 with TUI - 2 Monitor	**Test Date:** April 2021
Model Number: 11371816	**Report Number:** TAB3-PB-21-057-V2
UUT Function: Ceiling suspension of monitors used for X-Ray and Fluoroscopy systems	
UUT Description: Ceiling monitor suspension system	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Depth	Width	Height	FB	SS	V
211	115.2	154.5	46.9	N/A	N/A	N/A

The ceiling suspended monitor support moves laterally, rotates, and extends up and down to accommodate different patients and procedures. The system was tested in the normal operating position with the system horizontally centered, no rotation, and the arm fully extended.

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.68	0.68

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

Mounting Details: Rails and connecting parts of the Display Ceiling Suspension bolt with M10 bolts torqued at 36 ft-lb to unistrut grid spaced at 26.6" on center. The unistrut grid consisted of MURPO#150969 MPR-41/82/2.0 H-Profiles (Unistrut P1001 equivalent) anchored with 2 - M10 bolts with clamping claws (MURPO 157219) at each intersection to the ceiling fixture framing spaced at 23.6" on center.

Manufacturer: Siemens Healthcare GmbH	**Test Location:** IABG - Munich, Germany
Component: DCS-1 w/o TUI - 1 Monitor	**Test Date:** April 2021
Model Number: 11371813	**Report Number:** TAB3-PB-21-057-V2
UUT Function: Ceiling suspension of monitors used for X-Ray and Fluoroscopy systems	
UUT Description: Ceiling monitor suspension system	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Depth	Width	Height	FB	SS	V
154	101	140.4	38.2	N/A	N/A	N/A

The ceiling suspended monitor support moves laterally, rotates, and extends up and down to accommodate different patients and procedures. The system was tested in the normal operating position with the system horizontally centered, no rotation, and the arm fully extended.

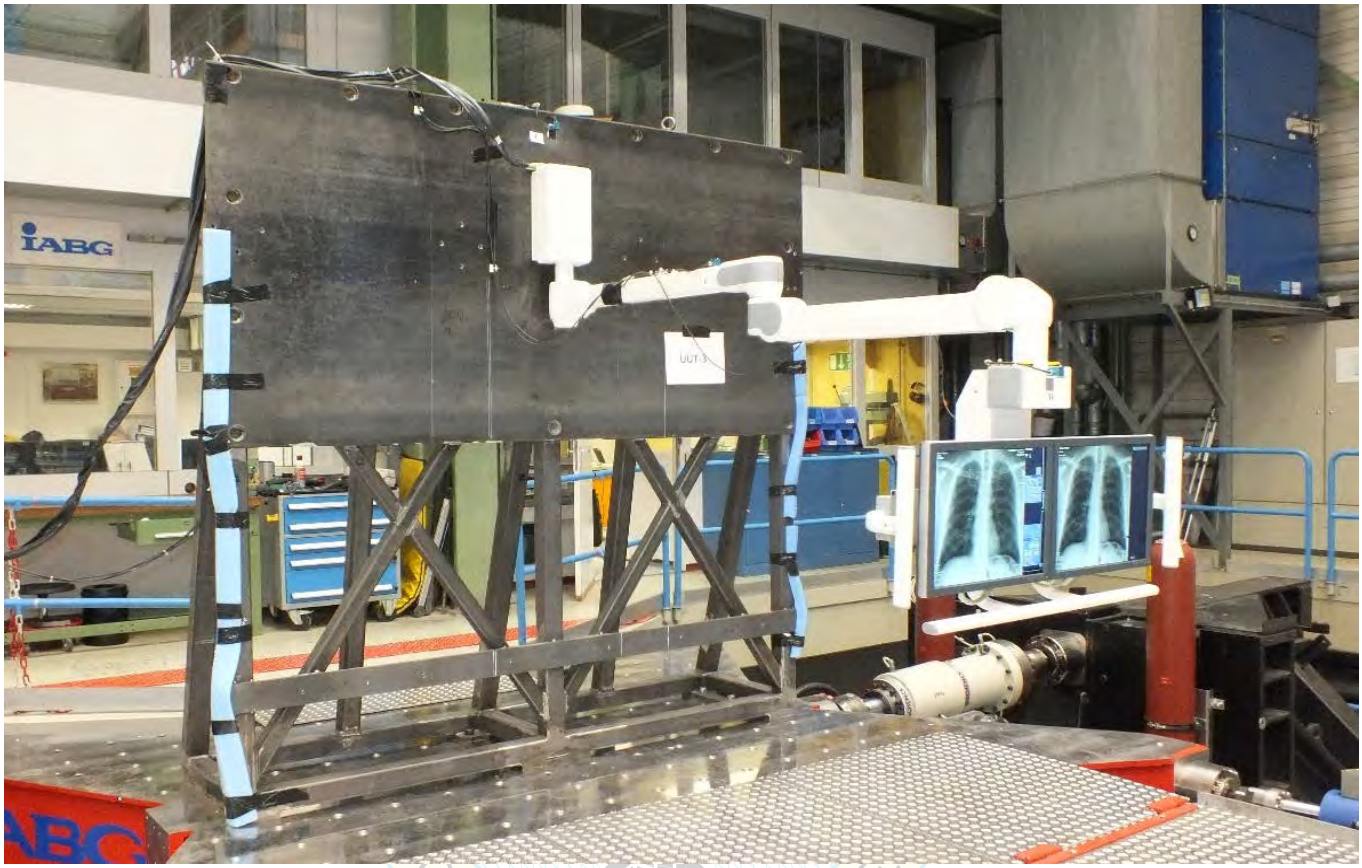
SEISMIC TEST PARAMETERS

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.68	0.68

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_x-3	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Rigid wall mounted with 4 - M10 grade 8 bolts and washers.



Manufacturer: Siemens Healthcare GmbH	**Test Location:** IABG - Munich, Germany
Component: DWS-2 - 2 Monitor	**Test Date:** April 2021
Model Number: 11371818	**Report Number:** TAB3-PB-21-057-V2
UUT Function: Wall suspension of monitors used for X-Ray and Fluoroscopy systems	
UUT Description: Wall monitor suspension system	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Depth	Width	Height	FB	SS	V
110	63.0	105.1	43.1	N/A	N/A	N/A

The wall suspended monitor support rotates, and extends up and down to accommodate different patients and procedures. The system was tested in the normal operating position with no rotation and the arm fully extended**.**

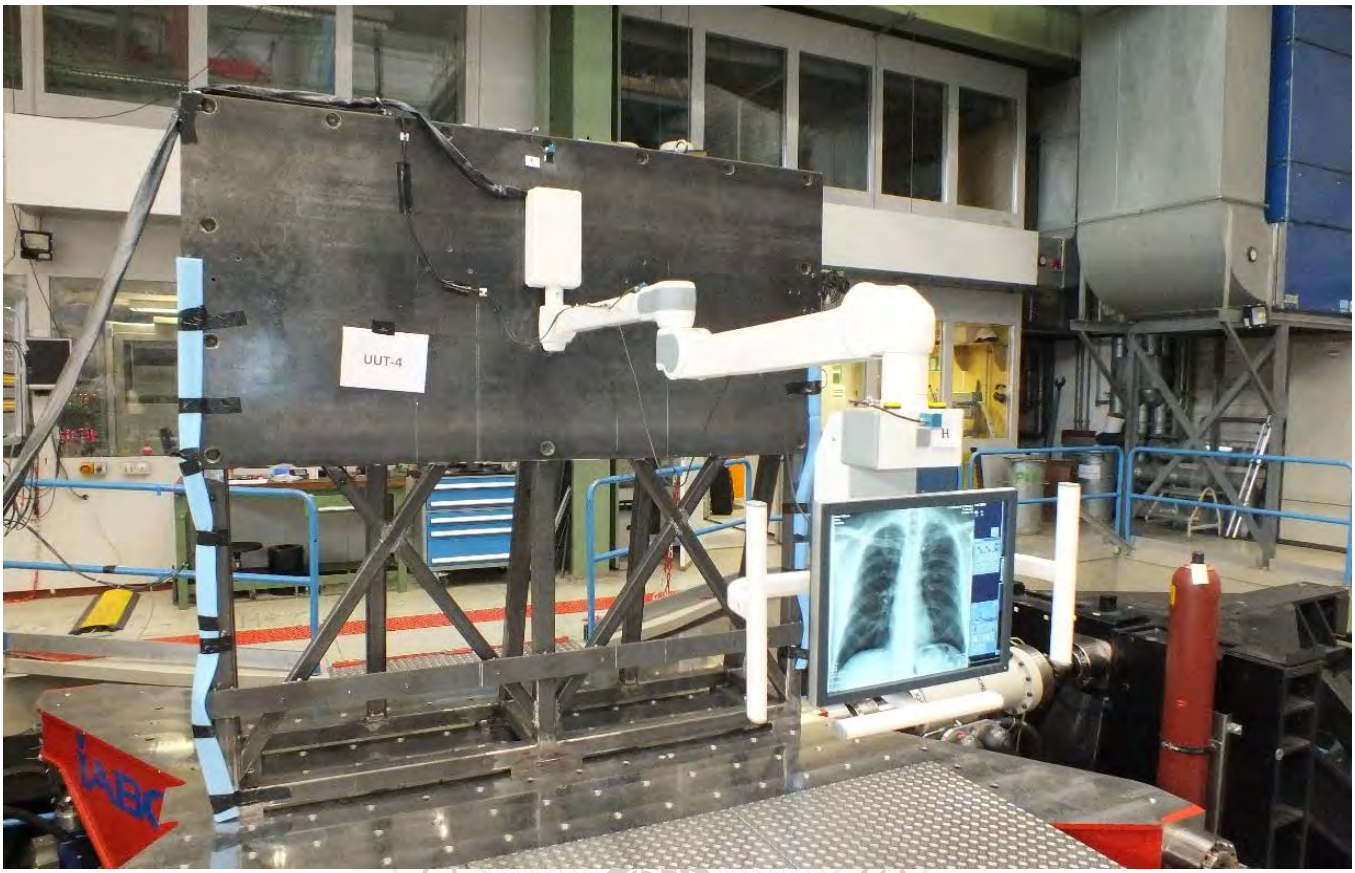
SEISMIC TEST PARAMETERS

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.68	0.68

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

Mounting Details: Rigid wall mounted with 4 - M10 grade 8 bolts and washers.



Manufacturer: Siemens Healthcare GmbH	**Test Location:** IABG - Munich, Germany
Component: DWS-1 - 1 Monitor	**Test Date:** April 2021
Model Number: 11371817	**Report Number:** TAB3-PB-21-057-V2
UUT Function: Wall suspension of monitors used for X-Ray and Fluoroscopy systems	
UUT Description: Wall monitor suspension system	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Depth	Width	Height	FB	SS	V
97	52.0	90.9	35.2	N/A	N/A	N/A

The wall suspended monitor support rotates, and extends up and down to accommodate different patients and procedures. The system was tested in the normal operating position with no rotation and the arm fully extended.

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.68	0.68

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

Mounting Details: Rails and connecting parts of the Display Ceiling Suspension bolt with M10 bolts torqued at 36 ft-lb to unistrut grid spaced at 26.6" on center. The unistrut grid consisted of MURPO#150969 MPR-41/82/2.0 H-Profiles (Unistrut P1001 equivalent) anchored with 2 - M10 bolts with clamping claws (MURPO 157219) at each intersection to the ceiling fixture framing spaced at 23.6" on center.

Manufacturer: Siemens Healthcare GmbH	**Test Location:** IABG - Munich, Germany
Component: DCS-1 w/o TUI - 1 Monitor	**Test Date:** February 2025
Model Number: 11688592 / 11688593	**Report Number:** TA-B-006469-V1
UUT Function: Ceiling suspension of monitors used for X-Ray and Fluoroscopy systems	
UUT Description: Ceiling monitor suspension system	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Frequency (Hz)		
	Depth	Width	Height	FB	SS	V
265	79.2	104.2	37.0	N/A	N/A	N/A

The ceiling suspended monitor support moves laterally, rotates, and extends up and down to accommodate different patients and procedures. The system was tested in the normal operating position with the system horizontally centered, no rotation, and the arm fully extended.

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 2022 / ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	-	-
	2.50	0.0	1.5	-	-	1.68	0.68

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.