



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

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

OFFICE USE ONLY

APPLICATION #: OSP-0461

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Siemens Healthcare GmbH

Manufacturer's Technical Representative: Friedrich Distler

Mailing Address: Siemensstr. 3, 91301 Forchheim, Germany

Telephone: +49 (9191) 18-5412

Email: friedrich.distler@siemens.com

Product Information

Product Name: Chillers

Product Type: Chillers - CT Scanners

Product Model Number: 12kW / 17kW / 20kW Indoor Units with Outdoor Unit

General Description: Water chillers used to cool hot air from CT scanner system.

Mounting Description: Rigid, Floor/Wall Mounted

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

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

Contact Person: Travis Soppe

Mailing Address: 1199 Shoreline Drive Suite 310, Boise, ID 83702

Telephone: (208) 342-5989

Email: tsoppe@wegai.com

Title: President





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

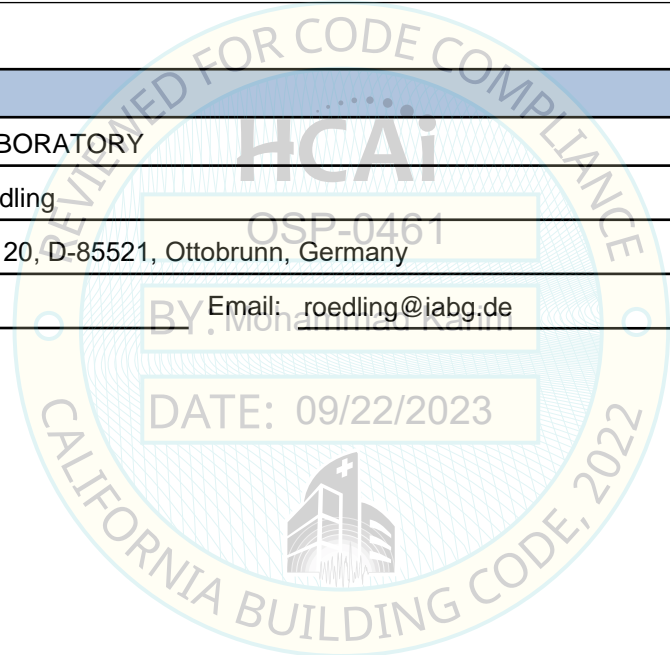
Company Name: W.E. GUNDY & ASSOCIATES INC.
Name: Travis Soppe California License Number: S6115
Mailing Address: P.O. Box 9121, Boise, ID 83707
Telephone: (208) 342-5989 Email: tsoppe@wegai.com

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: Dr. Steffen Roedling
Mailing Address: Einsteinstrasse 20, D-85521, Ottobrunn, Germany
Telephone: +49 89 6088 2052 Email: roedling@iabg.de





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.44 for SDS = 2.0 at z/h = 1 and 1.13 for SDS = 2.5 at z/h = 0

SDS (Design spectral response acceleration at short period, g) = 2.0 at z/h = 1 and 2.5 at z/h = 0

a_p (Amplification factor) = 1.0

R_p (Response modification factor) = 2.5

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

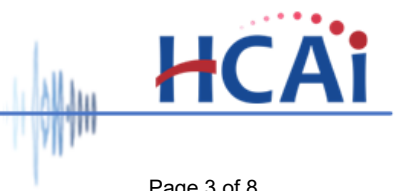
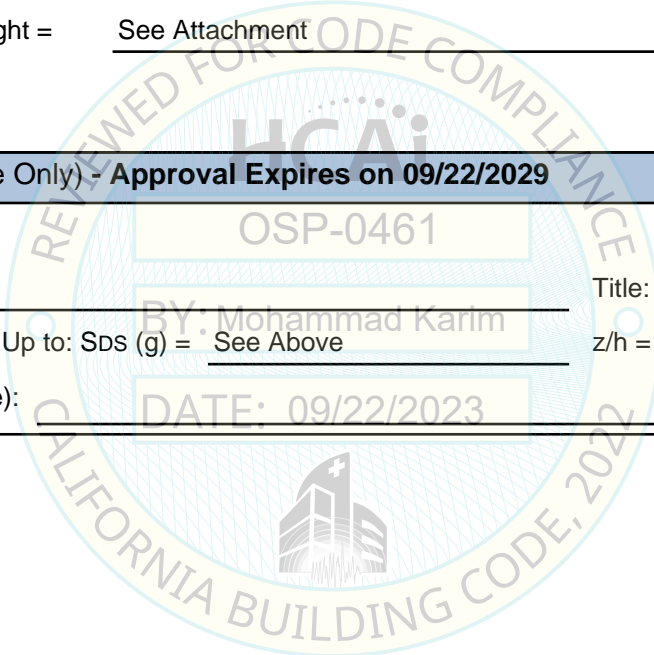
HCAI Approval (For Office Use Only) - Approval Expires on 09/22/2029

Date: 9/22/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

Condition of Approval (if applicable): DATE: 09/22/2023



| | | |
|----------------|--|---|
| Table 1 | SIEMENS HEALTHCARE GmbH SPECIAL SEISMIC CERTIFICATION CERTIFIED SYSTEM AND COMPONENTS |  WEGAI <small>W.E. GUNDY & ASSOCIATES, INC.</small> <small>STRUCTURAL & EARTHQUAKE ENGINEERING</small> |
|----------------|--|---|

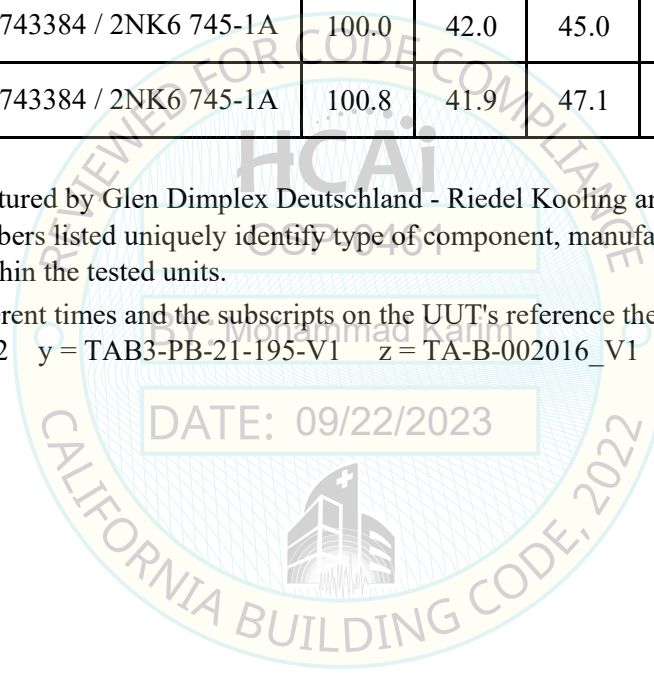
| | |
|---|--|
| System: Siemens Healthcare Water Cooling Systems | Manufacturer: Siemens / Glen Dimplex - Riedel |
|---|--|

| System Component ¹ | Part Number | Dimensions (in) | | | Weight (lb) | Mounting | UUT ² |
|-------------------------------|------------------------|-----------------|--------|--------|-------------|--------------|---------------------|
| | | Width | Length | Height | | | |
| 12kW Indoor Unit | 10589726 / 2NK6 746W | 40.0 | 28.0 | 77.0 | 1035 | floor / wall | extrapolated |
| 17kW Indoor Unit | 10430821 / 2NK6 745-1W | 40.0 | 28.0 | 77.0 | 1045 | floor / wall | UUT _x -1 |
| 20kW Indoor Unit | 11331491 / 2NK6 751W | 39.4 | 27.4 | 77.0 | 1102 | floor / wall | UUT _y -1 |
| Outdoor Unit 2 | 10743384 / 2NK6 745-1A | 100.0 | 42.0 | 45.0 | 455 | floor | UUT _x -2 |
| Outdoor Unit 2 | 10743384 / 2NK6 745-1A | 100.8 | 41.9 | 47.1 | 463 | floor | UUT _z -1 |

Notes:

¹ All components are manufactured by Glen Dimplex Deutschland - Riedel Kooling and delivered by Siemens Healthcare GmbH unless noted. Part numbers listed uniquely identify type of component, manufacturer, and material of construction for each sub-component within the tested units.

² The units were tested at different times and the subscripts on the UUT's reference the following seismic test reports:
x = TA34-PB-387-15-02 y = TAB3-PB-21-195-V1 z = TA-B-002016_V1



SEISMIC CERTIFICATION LIMITS

| System Component | Code | S _{DS} (g) | z / h | I _p | a _p | R _p | Ω ₀ | F _p / W _p |
|---------------------------------|----------|---------------------|-------|----------------|----------------|----------------|----------------|---------------------------------|
| 12kW / 17kW / 20kW Indoor Units | CBC 2022 | 2.0 | 1.0 | 1.50 | 1.0 | 2.5 | 2.0 | 1.44 |
| | | 2.5 | 0 | | | | | 1.13 |
| Outdoor Unit 2 | CBC 2022 | 2.0 | 1.0 | 1.50 | 1.0 | 2.5 | 2.0 | 1.44 |
| | | 2.5 | 0 | | | | | 1.13 |

UUT_x-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor/wall mount with 4 - M12 grade 8.8 bolts to the floor and 2 - M12 grade 8.8 bolts to the wall fixture. All bolts were torqued at 65ft-lbs.



| | |
|--|--|
| Manufacturer: Siemens / Glen Dimplex - Riedel | Test Location: IABG - Munich, Germany |
| Component: 17kW Indoor Unit | Test Date: December 2015 |
| Serial Number: 10430821 / 2NK6 745-1W | Report Number: TA34-PB-387-15-02 |

UUT Function: Water chiller used to cool hot air from CT-scanner system.
UUT Description: Component of the Siemens Healthcare Water Cooling Systems. Carbon steel enclosure housing a 17kW refrigeration circuit.

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|----|----|
| | Width | Depth | Height | FB | SS | V |
| 1,047 | 40" | 28" | 77" | 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 2022 / ICC-ES AC156 | 2.00 | 1.0 | 1.5 | 3.20 | 2.40 | - | - |
| | 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_y-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor/wall mount with 4 - M12 grade 8.8 bolts to the floor and 2 - M12 grade 8.8 bolts to the wall fixture. All bolts were torqued at 65ft-lbs.



| | |
|--|--|
| Manufacturer: Siemens / Glen Dimplex - Riedel | Test Location: IABG - Munich, Germany |
| Component: 20kW Indoor Unit | Test Date: November 2021 |
| Serial Number: 11331491 / 2NK6751W | Report Number: TAB3-PB-21-195-V1 |

UUT Function: Water chiller used to cool hot air from CT-scanner system.

UUT Description: Component of the Siemens Healthcare Water Cooling Systems. Carbon steel enclosure housing a 20kW refrigeration circuit. Optional transformer 7741585 / 2NK67451T included in UUT.

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|----|----|
| | Width | Depth | Height | FB | SS | V |
| 1,102 | 39.4" | 27.4" | 77.0" | 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 2022 / ICC-ES AC156 | 2.00 | 1.0 | 1.5 | 3.20 | 2.40 | - | - |
| | 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_x-2

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid Floor mounted with 4 - M12 grade 8.8 bolts.



| | |
|--|--|
| Manufacturer: Siemens / Glen Dimplex - Riedel | Test Location: IABG - Munich, Germany |
| Component: Outdoor Unit 2 | Test Date: December 2015 |
| Serial Number: 10743384 / 2NK6 745-1A | Report Number: TA34-PB-387-15-02 |

UUT Function: Water chiller used to cool hot air from CT-scanner system.
UUT Description: Component of the Siemens Healthcare Water Cooling Systems. Carbon steel enclosure housing radiator elements and fan system.

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|-----|-----|
| | Width | Depth | Height | FB | SS | V |
| 445 | 100" | 42" | 45" | 13.8 | 8.4 | >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 2022 / ICC-ES AC156 | 2.00 | 1.0 | 1.5 | 3.20 | 2.40 | - | - |
| | 2.50 | 0.0 | 1.5 | - | - | 1.67 | 0.67 |

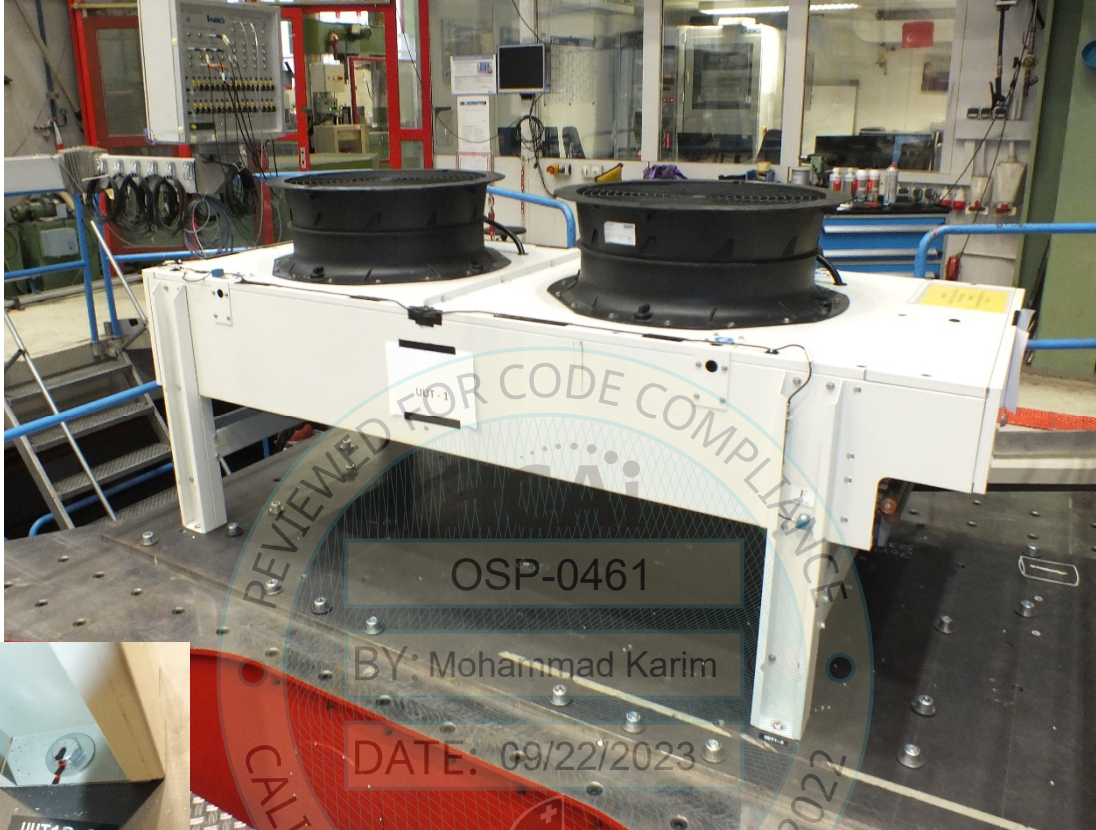
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT_z-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid Floor mounted with 4 - M12 grade 8.8 bolts.



Manufacturer: Siemens / Glen Dimplex - Riedel **Test Location:** IABG - Munich, Germany

Component: Outdoor Unit 2 **Test Date:** January 2023

Serial Number: 10743384 / 2NK6 745-1A **Report Number:** TA-B-002016_V1

UUT Function: Water chiller used to cool hot air from CT-scanner system.

UUT Description: Component of the Siemens Healthcare Water Cooling Systems. Carbon steel enclosure housing radiator elements and fan system. Utilizes preinstalled seismic kit #10432187.

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|-----|------|
| | Width | Depth | Height | FB | SS | V |
| 463 | 100.8" | 41.9" | 47.1" | 15.7 | 8.9 | 11.4 |

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 | - | - | 1.67 | 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.