



**FORM WCCL-PC3
WCCL TEST STAND APPROVAL
PROCEDURE AND CHECKLIST**

**AHRI CERTIFICATION PROGRAM FOR WATER-COOLED WATER
CHILLING AND HEAT PUMP WATER-HEATING (WCCL) PACKAGES**

WCCL Participant: _____
Date of Inspection: _____
Test Stand Inspection Report Number: _____
Approval Results: _____

Instructions to Laboratory Representatives: The following Test Stand Approval Procedure and Checklist is to be used by the Representative Contracted by AHRI (Representative) to conduct test stand inspections for the Water-Cooled Water Chilling and Heat Pump Water-Heating (WCCL) Packages Certification Program at a Participant's test stand (Test Stand). This Test Stand Approval Procedure and Checklist is to be used in conjunction with the AHRI General Operations Manual (OM) for AHRI Certification Programs, the WCCL OM and the latest edition of AHRI Standard 550/590 (I-P) or AHRI Standard 551/591 (SI) (Standard). Where the AHRI General OM, the WCCL OM and this Witness Test Procedure and Checklist differ, the other documents shall prevail. The completed checklist shall be maintained by AHRI upon the completion of the review.

If an AHRI Certification Test will not be conducted in conjunction with the Test Stand Inspection, then Laboratory instrumentation comparisons are not required.

If the Test Stand fails to comply with the conditions listed below:

- Notify AHRI
- Notify Participant
 - If the Test Stand fails inspection and was scheduled to be conducted in conjunction with an AHRI WCCL Certification Test, then the AHRI Certification Test shall be delayed until the Test Stand is brought into compliance.

The Participant will select one of the two Approval Categories (below) and submit the appropriate documentation.

The Representative will conduct Preliminary Approval and then the Test Stand Inspection associated with the selected Approval Category.

APPROVAL CATEGORIES

Requirements	Category 1	Category 2
Form WCCL-FA1 Application	■	■
Form WCCL-FA2 Personnel Experience Questionnaire	■	
Form WCCL-FA3 Test Stand and Equipment Questionnaire	■	■
Form WCCL-FA4 Calibration Summary	■	
Copy of each calibration report showing last dates of calibration	■	■
AHRI System Calibration Worksheet (Available on AHRI Website)	■	■
Schematic drawing of the area of the test stand in which AHRI certification testing will be performed	■	
Photographs of the test stand in which AHRI certification testing will take place (<i>which shall include sufficient views to show the location and connection of each instrument as well as the location and connection of the ports to be used by the Laboratory during witness testing</i>)	■	
Full Test Stand Inspection	■	■

("■" indicates the item is required for the category)

Category Descriptions:

Category 1 = Test Stand Approval (to be compliant with the latest edition of AHRI Standard 550/590 (I-P) or AHRI Standard 551/591 (SI)). This includes the initial approval, approval after expiration of an approval, and approval after physical and/or operational changes are made which impact results of a previous Category 1 approval.

Category 2 = Approval of revised capacity limits on the Test Stand with a current Category 1 Approval. An approval in this category does not modify the expiration date of the Category 1 approval.

- [1] This is a Test Stand Approval (to be compliant with the latest edition of AHRI Standard 550/590 or AHRI Standard 551/591 (SI))
- WCCL-FA1 and all associated Forms and Documents specified in WCCL-FA1 must be signed and submitted
 - A Full Test Stand Inspection will be conducted
- [2] Test Stand Approval to revise capacity limits on the Test Stand with a current Category 1 Approval.
- WCCL-FA1 must be signed and submitted
 - WCCL-FA2 is not required
 - WCCL-FA3 must be signed and submitted
 - WCCL-FA4 is not required
 - Calibration Reports and the AHRI System Calibration Worksheet must be submitted
 - Schematics and Photos are not required
 - A Full Test Stand Inspection will be conducted

Pre-Visit/Preliminary Approval

Confirm that the following Witness Testing Forms and Documents have been submitted by the Participant and conduct verification steps associated with each of the Forms and Documents in order to grant preliminary approval of the Test Stand:

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|-------|-------|---|
| _____ | _____ | 1. WCCL-FA1: Application for Witness Testing <ul style="list-style-type: none"> a. Verify form is completed in its entirety b. Verify which Approval Category the Participant has selected |
| _____ | _____ | 2. WCCL-FA2: Personnel Experience Questionnaire (When Required) <ul style="list-style-type: none"> a. Verify form is completed in its entirety |
| _____ | _____ | 3. WCCL-FA3: Test Stand and Equipment Questionnaire <ul style="list-style-type: none"> a. Verify form is completed in its entirety b. Verify water flow capability matches minimum and maximum cooling capacity of the Test Stand c. Verify Power Supply is suitable for the equipment being tested d. Familiarize yourself with the answers to all of the questions in the Form. Contact the Participant to resolve any issues e. Identify all "NO" answers. Contact the Participant to resolve any issues |
| _____ | _____ | 4. WCCL-FA4: Calibration Summary (When Required) <ul style="list-style-type: none"> a. Verify form is completed in its entirety b. Verify that calibration has been properly conducted c. Verify that all Systems meet the required accuracy per Table C1 of AHRI Standard 550/590 (I-P) or AHRI Standard 551/591 (SI), over the intended range-of-use for the System <p style="margin-left: 40px;">Note: Current transformers are exempt from the requirement for accuracy class 0.3, provided that the power measurement system meets the accuracy requirements of Appendix C, Table C1.</p> |
| | | 5. Calibration Reports showing dates of last calibration of each System/Instrument <ul style="list-style-type: none"> a. Verify that each instrument listed in the WCCL-FA4 is also listed in the Calibration report(s) b. Verify that all Systems/Instruments will have current calibrations at the time of the Witness test |
| _____ | _____ | 6. Schematic drawing of the area of the Test Stand in which AHRI certification testing will be conducted (When Required) <ul style="list-style-type: none"> a. Verify that the information is reasonable |
| _____ | _____ | 7. Photographs of the Test Stand in which AHRI certification testing will be conducted, which shall include sufficient views to show the location and connection of each instrument as well as the location and connect of the ports to be used by the Laboratory during witness testing (When Required) <ul style="list-style-type: none"> a. Verify that photographic views show all instruments b. Verify that photographic views show locations of ports for Laboratory instrumentation c. Verify that the test elements (instruments, equipment, power wires, etc) seem reasonable |

Pre-Visit/Preliminary Approval (contin.)

Determine whether the Test Stand should be granted preliminary approval

If NO:

- Inform AHRI
- Inform the Participant of additional information and/or changes that are required.
- Upon receipt of additional information and/or confirmation of changes, make a determination whether to grant preliminary approval of the Test Stand or not

If YES:

- Inform AHRI
- Make arrangements for Test Stand inspection

Prior to the Test Stand inspection, confirm the following with the Participant

- A chiller must be *operated* at 100% and 25% load points for the inspection
- The capacity of the chiller used for the inspection must be at least 85% of the maximum capacity of the Test Stand being inspected

Day of Inspection at Participant's Test Stand

_____	_____	<p>Upon arrival, request a brief meeting of the involved parties to review the following information:</p> <ol style="list-style-type: none"> 1. Safety rules at the site 2. Completed Forms FA1-FA4 3. Schedule of testing/inspection
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TEST STAND INSPECTION: VERIFICATION OF HARDWARE

_____	_____	<ol style="list-style-type: none"> 1. Verify that the capacity of the chiller being used for the inspection is at least 85% of the maximum stated capacity of the Test Stand (as stated in Form WCCL-FA3). If the Test Stand Inspection is not conducted in conjunction with an AHRI Certification Test, then the chiller must be run at 100% and 25% (or lowest available capacity step) test points and data must be collected to verify test stand capabilities
_____	_____	<ol style="list-style-type: none"> 2. Verify that all instruments are installed and are being applied as described in Form WCCL-FA3: <ul style="list-style-type: none"> • Verify that all instruments are being applied and used in accordance with AHRI Standard 550/590 (I-P) or AHRI Standard 551/591 (SI) • Verify that the descriptions in Form WCCL-FA3 match actual installations and usage • Verify that calibration stickers are current and properly installed on all instruments
_____	_____	<ol style="list-style-type: none"> 3. Verify proper installation of test chiller in test room <ul style="list-style-type: none"> • Water connections and pressure taps are installed correctly • Power connections are correct and voltage measuring devices are installed correctly

OPERATION OF CHILLER: TEST STAND CONTROL AND DATA ACQUISITION

_____	_____	<ol style="list-style-type: none"> 1. Start chiller and achieve stable 100% load conditions <ul style="list-style-type: none"> • <u>Observe operation of the Test Stand and record any unusual circumstances.</u>
_____	_____	<ul style="list-style-type: none"> • Note the time it takes to get from start up to stable 100% conditions
_____	_____	<ul style="list-style-type: none"> • Have the Participant run a test (collecting all data) according to the Standard
_____	_____	<ul style="list-style-type: none"> • Verify Participant's data is recorded as per Section C3.1.2, C5.1 and C5.2 of the Standard

REPRESENTATIVE INITIALS	DATA POINT (IF APPLICABLE)
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Day of Inspection at Participant's Test Stand (contin.)

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| _____ | _____ | <ul style="list-style-type: none"> • Did you observe any limitations of the Test Stand? |
| _____ | _____ | <p>2. Achieve stable 25% load conditions</p> <ul style="list-style-type: none"> • Observe operation of the Test Stand and record any unusual circumstances. |
| _____ | _____ | Note the time it takes to get from start up to stable 25% conditions |
| _____ | _____ | Have the Participant run a test (collecting all data) according to the Standard |
| _____ | _____ | Verify Participant's data is recorded as per Sections C5.1 and C5.2 of the Standard |
| _____ | _____ | Did you observe and limitations of the Test Stand? |

Determine whether the Test Stand should be granted approval

- | | | |
|-------|-------|---|
| _____ | _____ | <p>If NO:</p> <ul style="list-style-type: none"> • <u>Identify specifically what additional information and/or changes are required</u> |
| _____ | _____ | <ul style="list-style-type: none"> • Determine whether the additional information and/or required changes can be completed during this inspection visit or if another test stand inspection must be scheduled for a later date |
| _____ | _____ | <p>If YES:</p> <ul style="list-style-type: none"> • AHRI will issue Test Stand Approval Certificate |

This checklist & all supporting documents have been reviewed & approved by:

PRINTED NAME OF REPRESENTATIVE

SIGNATURE OF REPRESENTATIVE

DATE