



FORM WCCL-FA3
WCCL TEST STAND AND EQUIPMENT QUESTIONNAIRE
AHRI CERTIFICATION PROGRAM FOR WATER-COOLED WATER
CHILLING AND HEAT PUMP WATER-HEATING (WCCL) PACKAGES

Company (Participant) Name _____

Test Stand Address and Unique Name _____

1. Test Stand Limitations

Operating Range of Test Stand	Minimum Cooling Capacity	Indicate Tons or kW	
	Maximum Cooling Capacity		
Evaporator Water Flow	Minimum Capacity	Indicate GPM or L/s	
	Maximum Capacity		
Condenser Water Flow	Minimum Capacity		
	Maximum Capacity		
Power Supply	60 Hz, 3 Phase	Volts	
		Max Amps	
	50 Hz, 3 Phase	Volts	
		Max Amps	
Physical Size	Dimensions of largest unit you can place in your test stand (Indicate ft or m)	Length	
		Height	
		Width	

2. Time Requirements

How long does it take to install and fully instrument a unit for test?	# of Persons	
	Total # of man-hours	
How long does it take to conduct a standard rating test from start to finish, including calculations?	# of Persons	
	Total # of man-hours	
How many shifts per day will you employ for witness testing?	Length of shift, hrs.	
	# of shifts	

3. Water Temperature Measurement

Instruments for determining water temperature	Instrument Accuracy	Frequency of calibration, months	Is the primary standard traceable to NIST or a comparable National Standard?	
RTD			<input type="checkbox"/> Yes	<input type="checkbox"/> No
Thermocouple			<input type="checkbox"/> Yes	<input type="checkbox"/> No
Other:			<input type="checkbox"/> Yes	<input type="checkbox"/> No
Data Acquisition Type				

- Where do you place your water temperature measuring instruments?

- What type of mixing device do you employ in the chilled water medium?

- The mixing device conforms to which standard? _____

4. Does your system have additional thermowells located near the Entering and Leaving water temperature sensors capable of accommodating ¼ inch Laboratory probes with immersion depths of 1/3 to ½ the diameter of the pipe? Yes No

5. Flow Measurement

Flow measuring instruments used	Instrument Accuracy	Diameter	Frequency of calibration, months	To what code standard(s), if any, is the instrument installed?	Is the primary standard traceable to NIST or a comparable National Standard?
Rota meter					<input type="checkbox"/> Yes <input type="checkbox"/> No
Turbine meter					<input type="checkbox"/> Yes <input type="checkbox"/> No
Orifice meter					<input type="checkbox"/> Yes <input type="checkbox"/> No
Magnetic meter					<input type="checkbox"/> Yes <input type="checkbox"/> No
Other _____					<input type="checkbox"/> Yes <input type="checkbox"/> No
Data Acquisition Type _____					

- Does test stand presently have a 24 inch unobstructed section of piping free of elbows, insulation, etc. for several pipe diameters upstream for application of a strap-on flow meter? Yes No
- Is the flow measuring device installed according to the manufacturer's specification? Yes No
- What is the length of straight pipe upstream of flow measuring device ? _____
- What is the length of straight pipe downstream of flow measuring device ? _____

6. Water Pressure Drop Measurement

Water Pressure Drop instruments used	Instrument Accuracy	Frequency of calibration, months	To what code standard(s), if any, is the instrument installed?	Is the primary standard traceable to NIST or a comparable National Standard?
Differential Pressure				<input type="checkbox"/> Yes <input type="checkbox"/> No
Absolute pressure 1				<input type="checkbox"/> Yes <input type="checkbox"/> No
Absolute pressure 2				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
Other _____				<input type="checkbox"/> Yes <input type="checkbox"/> No
Data Acquisition Type _____				

- Describe the location of static pressure taps:

- Will you be utilizing adjustment factors per Appendix G of AHRI Standard 550/590 (I-P) or AHRI Standard 551/591 (SI) to adjust the measured pressure drop for external piping and/or fittings?
 Yes No
- Do your static pressure ports have an additional pair of 1/8 inch NPT ports for Laboratory pressure tubes?
 Yes No

7. Power Measurement

Power measurement devices	Instrument Accuracy	Frequency of calibration, months	Capable of both 50 and 60 Hz non-sinusoidal measurement?	Is the primary standard traceable to NIST or a comparable National Standard?
Watt meter			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Watt hour meter			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Transducers			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other _____			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Data Acquisition Type				

8. Voltage Measurement

Type of voltmeter used	Instrument Accuracy and/or Metering Class	Frequency of calibration, months	Is the primary standard traceable to NIST or a comparable National Standard?
Analog meter			<input type="checkbox"/> Yes <input type="checkbox"/> No
Digital meter			<input type="checkbox"/> Yes <input type="checkbox"/> No
Transducers			<input type="checkbox"/> Yes <input type="checkbox"/> No
Potential Transformer			<input type="checkbox"/> Yes <input type="checkbox"/> No
Other _____			<input type="checkbox"/> Yes <input type="checkbox"/> No

9. Current Measurement

Type of ammeter used	Instrument Accuracy and/or Metering Class	Frequency of calibration, months	Is the primary standard traceable to NIST or a comparable National Standard?
Analog meter			<input type="checkbox"/> Yes <input type="checkbox"/> No
Digital meter			<input type="checkbox"/> Yes <input type="checkbox"/> No
Current Transformer			<input type="checkbox"/> Yes <input type="checkbox"/> No
Transducers			<input type="checkbox"/> Yes <input type="checkbox"/> No
Other _____			<input type="checkbox"/> Yes <input type="checkbox"/> No

- Is a regulated voltage supply available for test unit? Yes No
- If not regulated, what is the frequency and the magnitude of change over 24 hours?

- What is the magnitude of change in the supply voltage between “load” and “no load”?

- Is the wave shape of the supply voltage a complete sine wave? Yes No
If not, attach a sample wave form and details of the power source including total harmonic distortion.

10. Data Acquisition

- Describe data acquisition system and data obtained (averaging or instantaneous):

11. Test Stand Limitations

- Identify all Test Stand limitations for achieving AHRI test conditions (i.e. weather dependencies; air flow rates; etc).

- Identify all limitations for conducting AHRI certification testing (i.e. Test stand availability; operator training, etc).

12. Refrigerant Charge:

- What method do you employ to confirm proper refrigerant charge in the unit for test?

Submitted By:

Signature

Title

Printed Name

Date