



BALANCED AMBIENT CALORIMETER



Balanced Ambient Calorimeters (BAC) are designed for use in the research and development of unitary air conditioners, split systems and heat pumps. The BAC consists of two rooms, in an end to end configuration where dry bulb temperature and humidity are independently controlled. The indoor and outdoor rooms are separated by a partition wall. In order to provide zero leakage across the room boundaries, conditioned annular spaces are provided around the indoor room and the outdoor room. These spaces are maintained at the same temperature conditions at the inside rooms. CTS can also provide these facilities as the Calibrated Room Type as described in Ashrae 16 and ISO 5151.

Performance Specifications:

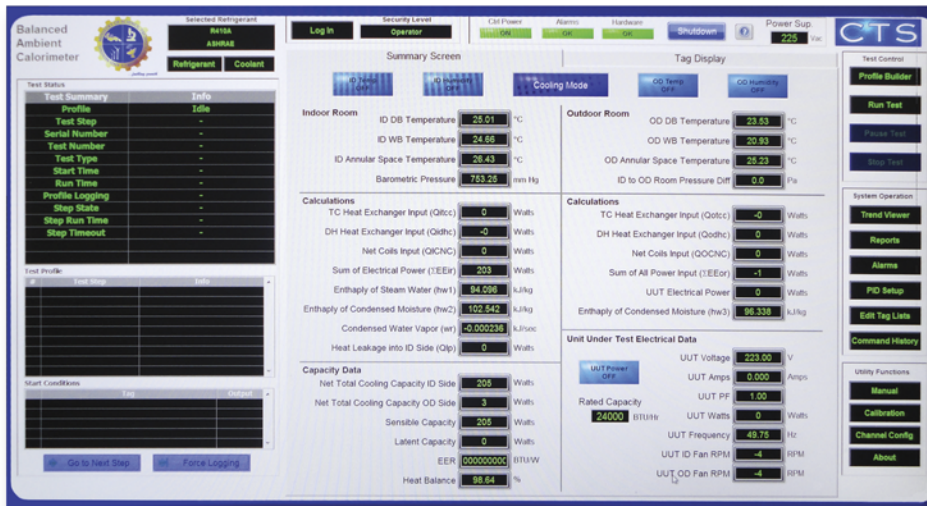
Indoor Room Specifications	
Dry Bulb Temperature Range	60 to 95°F (15.6 to 35°C)
Wet Bulb Temperature Range	48 to 94°F (8.9 to 34.4°C)
Dew Point Temperature Range	35 to 90°F (1.7 to 32.2°C)
Control	± 0.1°F (±0.06°C)
Uniformity @UUT Inlet	± 0.5°F (±0.3°C)
Max. Air Velocity	50 ft/min (around UUT)
Indoor Room Annular Space Specifications	
Dry Bulb Temperature Range	60 to 95 °F (15 to 35°C)
Wet Bulb Temperature Range	Not Controlled
Control	± 0.5°F (±0.3°C)
Uniformity	± 1 °F (±1.8 °C)
Outdoor Room Specifications	
Dry Bulb Temperature Range	+15 to 125 °F (-9.4 to 51.7°C)
Wet Bulb Temperature Range	+14 to 96°F (-18.8 to 32.2°C)
Dew Point Temperature Range	8 to 90°F (-20 to 26.7°C)
Control	± 0.1°F (±0.06°C)
Uniformity @UUT Inlet	± 0.5°F (±0.3°C)
Max. Air Velocity	50 ft/min (around UUT)
Outdoor Room Annular Space Specifications	
Dry Bulb Temperature Range	+15 to 125 °F (-9.4 to 51.7°C)
Wet Bulb Temperature Range	Not Controlled
Control	± 0.5°F (±0.3°C)
Uniformity	± 1 °F (±1.8 °C)
UUT Voltage Transformer	
UUT Voltage Range	90 to 600V
Voltage Control	±2.0 VAC
Control Type	Micro-Processor
Transformer Type	Motorized

System Design & Features

- > Indoor/Outdoor Room Design
- > Annular Space around Indoor and Outdoor Room with Conditioning Systems
- > Full Conditioning Capability in each room, removing need for reversal of UUT in partition wall
- > Chilled Water Conditioning System
- > Measurement of all Power Inputs and Outputs from the Test Rooms
- > Microprocessor Controlled Variable Voltage Transformer to control power to UUT
- > Computerized Data Acquisition and Control System using LabView
- > Conformance with ASHRAE 16 and ISO 5151

Control System

- > Control System: Allen-Bradley PLC
- > Operator Interface: Labview Based Application
- > Control Station: Windows Based PC



Software Features

- > Editing of test programs
- > Automatic test sequencing
- > Loop calibration and calibration reports
- > Hardware checkout routine
- > Stability monitoring
- > Real Time tolerance adjustments
- > Real time-history graphing capability
- > Automatic Test Report Generation
- > Data File Management



Performance Measurement

- > Capacity Range 3,000 to 60,000 Btu/Hr
- > 3% agreement or better, indoor side to outdoor side
- > 1% repeatability of test results



Bringing the Desired Climate to Your Doorstep

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