

CTS Climatic Testing Systems Bringing the Desired Climate to Your Doorstep



PSYCHROMETRIC



The Psychrometric Test Room will conform to the following standards:

No.	STANDARD	DESCRIPTION	
1	ASHRAE 37	Methods of Testing for Rating Unitary Air Conditioning and Heat Pump Equipment	
2	ASHRAE 41.1	Standard Method for Temperature Measurement.	
3	ASHRAE 41.2	Standard Methods for Laboratory Air-Flow Measurement	
4	ASHRAE 41.3	Standard Method for Pressure Measurement	
5	ASHRAE 41.6	Standard Method for Measurement of Moist Air Properties	
6	ASHRAE 51	Laboratory Methods of Testing Fans for Rating	
7	ASHRAE 58	Method of Testing for Rating Room Air Conditioned and Packaged Terminal Air Conditioner heating Capacity	
8	AHRI 210/240	Unitary Air Conditioning and Air-Source Heat Pump Equipment	
9	AHRI 340/360	Commercial and Industrial Unitary Air Conditioning and Heat Pump Equipment	
10	ISO 5151	Non-Ducted air conditioners and heat pumps – Testing and rating for performance	

¹ Based on required power supply stability by customer.

Indoor Roo	m Dry Bulb Temperature		
Dry Bulb Temperature Range	60°F to 95 °F	15.6°C to 35°C	
Control	± 0.2°F	± 0.1°C	
Uniformity @UUT Inlet	± 0.5°F	± 0.3°C	
Control Type	Single Point PID 100- Ω , 4-Wire Platinum RTD		
Sensor Type Sensor Location	UUT Inlet Sampler		
		Sampler	
	m Wet Bulb Temperature	0.000 0.4.400	
Wet Bulb Temperature Range Dew Point Temperature Range	48°F to 94°F 35 to 90°F	8.9°C to 34.4°C 1.7°C to 32.2°C	
Control	± 0.2°F	± 0.1°C	
Humidity Range		NAME OF THE OWNER OWNER OF THE OWNER OWNE	
Humidity Control	20 to 95% ±2%RH[±0.2°F wet bulb]		
Uniformity @UUT Inlet	± 0.5°F	± 0.3°C	
ControlType	Single Point PID		
Sensor Type	100- Ω, 4-Wire Platinum RTD		
Sensor Location	UUT Inlet Sampler		
Ind	oor Room Airflow		
Indoor room UUT airflow	800 to 9,000 CFM	1360 to 15,291 CMH	
Control Parameter	טט נט אָרָטט טוויי		
Control Range	-1.0 to +1.0 inch of WC		
Control	±0.02 inch of WC		
Control Type	Single Point PID		
UUT Airflow measurement	ASHRAE Nozzles with pneumatic selector switches		
Indoor Room air circulation	16,000 CFM TeVariable	27,184 CMH	
		Variable	
	om Dry Bulb Temperature		
Dry Bulb Temperature Range	+15 to 130 °F ± 0.2°F	-9.4 to 54.4°C ±0.1°C	
Control	± 0.2°F ± 0.5°F	±0.1°C ± 0.3°C	
Uniformity @UUT Inlet	± 0.5°P Single P		
Control Type Sensor Type	150.0		
Sensor Location	100- Ω, 4-Wire Platinum RTD UUT Inlet Sampler		
**************************************	om Wet Bulb Temperature	. Sumplei	
Wet Bulb Temperature Range	+14 to 96°F	-10 to 35.6°C	
Dew Point Temperature Range	8 to 90°F	-13.3 to 32.2	
Control	± 0.2°F	± 0.1°C	
	20 to 95%		
Humidity Range	20 to	±2%RH[±0.2°F wet bulb]	
Humidity Range		°F wet hulb1	
Humidity Control	±2%RH[±0.2		
Humidity Control Uniformity @UUT Inlet	±2%RH[±0.2 ± 0.5°F	± 0.3°C	
Humidity Control Uniformity @UUT Inlet Control Type	±2%RH[±0.2 ± 0.5°F Single P	± 0.3°C	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type	±2%RH[±0.2 ± 0.5°F Single P	± 0.3°C oint PID Platinum RTD	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet	± 0.3°C	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outco	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR Room Airflow	± 0.3°C oint PID e Platinum RTD : Sampler	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet	± 0.3°C oint PID Platinum RTD	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outco	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR Room Airflow	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet loor Room Airflow 1800 to 18000 CFM	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet loor Room Airflow 1800 to 18000 CFM UUT	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH ΔP 0 inch of WC	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOF ROOM Airflow 1800 to 18000 CFM UUT -1.0 to +1.0	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH AP 0 inch of WC ch of WC	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM UUT -1.0 to +1.0 ±0.02 in	± 0.3°C oint PID Platinum RTD Sampler 3058 to 30582 CMH - \(\Delta \text{P} \) Oinch of WC oint PID	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM UUT -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pne	± 0.3°C oint PID Platinum RTD Sampler 3058 to 30582 CMH - \(\Delta \text{P} \) Oinch of WC oint PID	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM UUT -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pne 25,000 CFM Variable	± 0.3°C oint PID Platinum RTD Sampler 3058 to 30582 CMH AP D inch of WC oint PID eumatic selector switches	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet loor Room Airflow 1800 to 18000 CFM -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pne 25,000 CFM Variable oltage Transformer	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH - AP 0 inch of WC ch of WC oint PID eumatic selector switches 42475 CMH Variable	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM UUT -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pre 25,000 CFM Variable Oltage Transformer 0 to 460VAC @	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH - \(\Delta \text{P} \) inch of WC oint PID eumatic selector switches 42475 CMH	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM UUT -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with prec 25,000 CFM Variable Oltage Transformer 0 to 460VAC @ 0 TO 560 VAC @	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH - \(\Delta \) Oinch of WC ch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation UUT V Transformer Output	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM UUT -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with precedent of the preced	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH AP D inch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input 480/3/60 Input	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation UUT V Transformer Output Voltage Control¹	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pre 25,000 CFM Variable Oltage Transformer 0 to 460VAC @ 0 TO 560 VAC @ ±2.0 Micro-P	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH AP Oinch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input 480/3/60 Input	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation UUT V Transformer Output Voltage Control Control Type	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR Room Airflow 1800 to 18000 CFM -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pre 25,000 CFM Variable Oltage Transformer 0 to 460VAC @ 0 TO 560 VAC @ ±2.0 Micro-P Moto	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH AP Oinch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input 0.480/3/60 Input VAC rocessor	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation UUT V Transformer Output Voltage Control¹ Control Type Transformer Type	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR Room Airflow 1800 to 18000 CFM UUT -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pre 25,000 CFM Variable Oltage Transformer 0 to 460VAC @ 0 TO 560 VAC @ ±2.0 Micro-P Moto	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH AP Oinch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input 0.480/3/60 Input 0.480/3/60 Input 0.480/3/60 Input 0.480/3/60 Input	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation UUT V Transformer Output Voltage Control Type Transformer Type Max Amps	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pne 25,000 CFM Variable Oltage Transformer 0 to 460VAC @ 0 TO 560 VAC @ 42.0 Micro-P Moto	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH - \(\Delta \) Oinch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input 480/3/60 Input 0 VAC rocessor orized Amps	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation UUT V Transformer Output Voltage Control¹ Control Type Transformer Type Max Amps Max KVA	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pne 25,000 CFM Variable Oltage Transformer 0 to 460VAC @ 0 TO 560 VAC @ 42.0 Micro-P Moto	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH AP D inch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input 480/3/60 Input Orcessor virized Amps 5.6 480/3Ø /60Hz	
Humidity Control Uniformity @UUT Inlet Control Type Sensor Type Sensor Location Outdoor room UUT airflow Control Parameter Control Range Control Control Type UUT Airflow measurement Outdoor Room air circulation UUT V Transformer Output Voltage Control¹ Control Type Transformer Type Max Amps Max KVA Customer Power Supply	±2%RH[±0.2 ± 0.5°F Single P 100- Ω, 4-Wire UUT Inlet OOR ROOM Airflow 1800 to 18000 CFM -1.0 to +1.0 ±0.02 in Single P ASHRAE Nozzles with pne 25,000 CFM Variable Oltage Transformer 0 to 460VAC @ 0 TO 560 VAC @ 140 Micro-P Moto	± 0.3°C oint PID e Platinum RTD : Sampler 3058 to 30582 CMH AP 0 inch of WC oint PID eumatic selector switches 42475 CMH Variable 400/3/50 Input 0.480/3/60 Input 1 VAC rocessor orized Amps 5.6 480/3Ø /60Hz 1 Amp 10 Amp	









Climatic Testing Systems

2367 North Penn Road Hatfield, Pa 19440 Phone (215) 773-9322 Fax (215) 773-9323 www.climatictesting.com