

# OPERATIONS MANUAL

## PACKAGED TERMINAL AIR CONDITIONERS AND PACKAGED TERMINAL HEAT PUMPS CERTIFICATION PROGRAM



## AHRI PTAC AND PTHP OM – JANUARY 2018

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## PREFACE

The following manual outlines the procedures and policies of the Performance Certification Program for Packaged Terminal Air-Conditioners and Heat Pumps (PTAC & PTHP) operated by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI). This manual is to be used in conjunction with the AHRI General Operations Manual (OM) for AHRI Certification Programs. Where the AHRI General Operations Manual and this product-specific manual differ, this product-specific operations manual shall prevail.

The revision of this manual supersedes all previous revisions. The current edition of this manual, as well as the AHRI General Operations Manual, can be accessed through the AHRI website, [www.ahrinet.org](http://www.ahrinet.org).

The PTAC & PTHP Certification Program by AHRI provides for independent verification of the Packaged Terminal Air-Conditioners and Heat Pumps manufacturers' stated equipment performance. Safety criteria are not within the scope of this program.

Participation in the program is voluntary. Any manufacturer, regardless of AHRI membership, may obtain approval of Program Ratings and use of the AHRI PTAC & PTHP Certification Mark hereinafter referred to as the "Mark". The Mark is the Participant's public representation that the ratings of randomly selected samples have been verified by an independent laboratory in accordance with test procedures prescribed by this operations manual. A Certification Agreement is executed between the Participant and AHRI specifying the conditions under which such Ratings and the Mark may be used. No manufacturer has the right to use Program Ratings or to state that their products have been tested in conformance with the procedures outlined in this Rating Procedure unless and until they have received written authority from AHRI to use the Mark as applied to the specific approved Program Ratings.

This Operations Manual has been prepared to assure that administration of the program is carried out in a uniform manner. It is an amplification of the Certification Agreement signed by licensees and AHRI. General information, procedural details, and copies of forms are included in this Operations Manual. Provisions of the Operations Manual may be amended as provided in the Certification Agreement.

This certification program complies with requirements of the ISO/IEC Standard 17065:2012, *General Requirements for Bodies Operating Product Certification Systems*.

### Note:

This manual supersedes the AHRI Packaged Terminal Air-Conditioners and Heat Pumps Certification Program Operational Manual January, 2017.

**CERTIFICATION PROGRAM OPERATIONS MANUAL FOR**  
**PACKAGED TERMINAL AIR-CONDITIONERS AND**  
**PACKAGED TERMINAL HEAT PUMPS**

**TABLE OF CONTENTS**

| <b>SECTION</b> |  | <b>PAGE</b> |
|----------------|--|-------------|
| <b>1</b>       | <b>Program Overview</b>  |             |
| 1.1            | Applicable Rating Standard .....   | 1           |
| 1.2            | Product Definitions .....  | 1           |
| 1.2.1          | Packaged Terminal Air-Conditioner (PTAC).....  | 1           |
| 1.2.2          | Packaged Terminal Heat Pump (PTHP).....  | 1           |
| 1.2.3          | New Construction Unit .....  | 1           |
| 1.2.4          | Replacement Unit .....   | 1           |
| 1.3            | Program Scopes .....   | 1           |
| 1.3.1          | Optional Certification.....  | 1           |
| 1.3.2          | Certification of 60 Hz Production Models.....  | 1           |
| 1.3.3          | Program Scope Exclusions.....  | 1           |
| 1.4            | Intended Market .....  | 1           |
| 1.5            | Basic Model Group (BMG).....   | 1           |
| <b>2</b>       | <b>Qualification Process</b>   |             |
| 2.1            | Original Equipment Manufacturer (OEM) Applicants.....  | 2           |
| STEP 2.1.1     | Certification Application Package .....  | 2           |
| STEP 2.1.2     | Processing Application Package .....   | 2           |
| STEP 2.1.2.1   | Performance Certification Agreement for Original<br>Equipment Manufacturer (OEM Agreement) ..... | 2           |
| STEP 2.1.2.2   | Participation and Licensing Fee Invoice .....  | 2           |
| STEP 2.1.3     | Selection and Acquisition of Test Samples.....   | 2           |
| STEP 2.1.3.1   | Number of Qualification Tests .....  | 2           |
| STEP 2.1.3.2   | Acquisition of Qualification Test<br>Samples/Selection Criteria .....                            | 2           |
| STEP 2.1.4     | Qualification Testing .....  | 2           |
| STEP 2.1.4.1   | Operating Tests .....  | 2           |
| STEP 2.1.4.2   | Successful Completion of All Qualification Tests .....   | 3           |
| STEP 2.1.4.3   | First Sample Qualification Test Failure.....   | 3           |
| STEP 2.1.4.4   | Second Sample Qualification Test Failure.....  | 3           |
| STEP 2.1.5     | Welcome to the Program .....   | 3           |
| 2.2            | Private Brand Marketer (PBM) Applicants .....  | 3           |
| STEP 2.2.1     | Certification Application Package .....  | 3           |
| STEP 2.2.2     | Processing Application Package .....   | 3           |
| STEP 2.2.2.1   | Performance Certification Agreement for Private<br>Brand Marketer (PBM Agreement) .....          | 3           |
| STEP 2.2.2.2   | OEM Agreement on Behalf of the PBM Applicant .....   | 3           |
| STEP 2.2.2.3   | Licensing Fee Invoice .....  | 3           |
| STEP 2.2.3     | Welcome to the Program .....   | 3           |
| <b>3</b>       | <b>Equipment Selection and Testing</b>   |             |
| 3.1            | Annual Testing Requirement .....   | 3           |
| 3.2            | Location of Test.....  | 3           |
| 3.3            | Selection of Test Samples .....  | 4           |
| 3.4            | Method for Acquiring Test Samples.....   | 4           |
| 3.4.1          | Pretesting .....   | 4           |
| 3.5            | Sample Acquisition Timeframe .....   | 4           |

|          |  |          |
|----------|--|----------|
| 3.6      | Test Set-up and Start-up Punch List.....   | 4        |
| 3.7      | Optional “Break-in” Period .....   | 4        |
| 3.8      | Certified Data .....   | 4        |
| 3.9      | Tests, PTAC.....   | 4        |
| 3.10     | Tests, PTHP.....   | 5        |
| 3.11     | Test Failures .....  | 5        |
|          | 3.12.1            Operating Test Failure .....                                     | 5        |
|          | 3.12.2            Options Following First Sample Failure .....                     | 5        |
|          | 3.12.3            Options Following Second Sample Failure .....                    | 5        |
| <b>4</b> | <b>Challenge Tests.....</b>  | <b>5</b> |
| <b>5</b> | <b>AHRI Directory of Certified Product Ratings</b>                                 |          |
| 5.1      | Publication of Certified Ratings in Certified Directory .....                      | 5        |
| 5.2      | Data Submittal Sheets .....  | 6        |
| <b>6</b> | <b>Assessment and Payment of Certification Fees</b>                                |          |
| 6.1      | Equipment Delivery/Disposal Fees .....   | 6        |
| <b>7</b> | <b>Issuance of Violations and/or Terminations .....</b>                            | <b>6</b> |
| <b>8</b> | <b>Program Hierarchy, Complaints, and the Appeals Process .....</b>                | <b>6</b> |
| <b>9</b> | <b>Proper Use of the AHRI Certification Mark and Claims to Certification .....</b> | <b>6</b> |

**Tables**

|         |   |   |
|---------|---|---|
| Table 1 | Certified Data.....                                     | 4 |
| Table 2 | Publication of Certified Ratings in the Directory ..... | 6 |

## 1. Program Overview

1.1 Applicable Rating Standard. It is mandatory for program Participants to comply with the provisions of the latest edition of ANSI/AHRI Standard 310/380/ Canadian Standards Association CSA C744, *Performance Rating Standard of Packaged Terminal Air-Conditioners and Heat Pumps* (Standard). A copy of the Standard is available for download from the AHRI website, [www.ahrinet.org](http://www.ahrinet.org).

### 1.2 Product Definitions.

1.2.1 Packaged Terminal Air-Conditioner (PTAC). A PTAC consists of a wall sleeve and a separate unencased combination of heating and cooling assemblies specified by the manufacturer and intended for mounting through the wall. It includes refrigeration components, separable outdoor louvers, forced ventilation, and other supplementary heat sources such as hot water, steam, or electric resistance heat. Models designated as a “cooling only” unit may not include heating elements if the physical characteristics and arrangement of the refrigeration system are identical to models with heating availability.

1.2.2 Packaged Terminal Heat Pump (PTHP). A PTHP consists of a separate unencased refrigeration system installed in a cabinet having a function and configuration similar to that of a PTAC. It uses reverse cycle refrigeration as its prime heat source and should have other supplementary heat sources such as hot water, steam, or electric resistance heat.

1.2.3 New Construction Unit. A new construction unit is a unit with sleeve dimensions of at least 16 in. high and/or at least 42 in. wide, as defined by ASHRAE Standard 90.1.

1.2.4 Replacement Unit. A replacement unit is a unit with existing sleeve dimensions of less than 16 in. high and less than 42 in. wide, as defined by the current version of ASHRAE 90.1.

1.3 Program Scopes. This program applies to 50 and 60 Hz Production Models of New Construction PTAC and PTHP, as defined in Section 1.2.

The Packaged Terminal Air-Conditioners (PTAC) Certification Program and the Packaged Terminal Heat Pumps (PTHP) Certification Programs are two separate programs.

1.3.1 Optional Certification. Certification of 50 and 60 Hz Production Models intended for sale outside of the Intended Market, as defined in Section 1.4, is optional.

1.3.2 Certification of 60 Hz Production Models. All 60 Hz Production Models intended for sale within the Intended Market, as defined in Section 1.4, are covered by the Certify-All Policy (as outlined in Section 7 of the General Operations Manual).

1.3.3 Program Scope Exclusions. The PTAC and PTHP Certification Programs exclude the following:

- Production Models of PTACs and PTHP classified as Replacement; and
- Rating and testing of individual assemblies, such as condensing units or coils, for separate use.

1.4 Intended Market. The Intended Market for this certification program, where the Standard applies, includes all products defined in Section 1.3 that are sold for use in the U.S. (including U.S. Territories) and Canada. Refer to Section 7 of the General OM for additional requirements.

1.5 Basic Model Group (BMG). A Participant’s listing shall be grouped by BMG. A BMG shall consist of models with similar refrigeration unit design, having Cooling Capacity within 300 Btu/h of one another, and with various heating means. The Participant, at its option, can increase his number of BMGs by including voltage classifications.

## 2. Qualification Process

2.1 Original Equipment Manufacturer (OEM) Applicants. With the additions noted below, the OEM qualification process shall proceed according to the AHRI General Operations Manual, Section 4.

STEP 2.1.1 Certification Application Package In addition to the Application for AHRI Certification, Annual Sales Volume Form, and product-specific ratings and data, noted in the AHRI General Operations Manual, Section 4, STEP 4.1, Applicants shall submit the following documentation to AHRI:

- One test report for each BMG; and
- An Applicant requesting AHRI to submit data to CEC, DOE, and NRCan shall submit third-party authorization, compliance forms and other necessary information.

Electronic forms shall be obtained from AHRI. (available on [www.ahrinet.org](http://www.ahrinet.org) under the Product-Specific Certification Program).

STEP 2.1.2 Processing Application Package.

STEP 2.1.2.1 Performance Certification Agreement for Original Equipment Manufacturer (OEM Agreement). No further action required beyond that listed in Section 4, STEP 4.2 of the AHRI General Operations Manual.

STEP 2.1.2.2 Participation and Licensing Fee Invoice. Payment of the Participation and Licensing Fee is due within 30 calendar days of the invoice issue date. Testing shall not be conducted until the invoice is paid in full. No further action required beyond that listed in Section 4, STEP 4.2 of the AHRI General Operations Manual.

STEP 2.1.3 Selection and Acquisition of Test Samples.

STEP 2.1.3.1 Number of Qualification Tests. 20% of an Applicant's BMGs shall be tested, with a minimum of two (2) models. Fractional numbers shall be rounded to the nearest whole number using traditional rounding methods.

STEP 2.1.3.2 Acquisition of Qualification Test Samples/Selection Criteria. Within 30 calendar days of a request from AHRI, the Applicant shall have samples available for selection. Samples shall be acquired in accordance with Section 3 of this manual.

STEP 2.1.4 Qualification Testing. AHRI shall supply the Independent Third-party Laboratory Contracted by AHRI (Laboratory) with the Published Ratings. The Laboratory shall conduct the testing of the samples in accordance with the Standard, against the Published Ratings.

STEP 2.1.4.1 Operating Tests. In addition to the Performance Rating tests, all qualification tests shall include all of the following Operating Tests to be conducted after the Performance Rating Tests:

- Air Infiltration Test;
- Condensate Disposal Test (Cooling);
- Insulation Effectiveness Test (Cooling);
- Maximum High-Temperature Operating Test; and
- Voltage Tolerance Test.

If a first sample test fails any Operating Test, a second sample, shall be tested. If the second sample fails any Operating Test, then that model and BMG shall not be entered into the AHRI Directory of Certified Product Performance (Directory) and the Applicant shall cease production and sale of the failed model and BMG in order to qualify into the certification program. An additional qualification

sample shall be selected and tested (if all BMGs have not been tested) to continue the qualification process.

STEP 2.1.4.2 Successful Completion of All Qualification Tests. If all qualification tests pass, proceed to STEP 2.1.5.

STEP 2.1.4.3 First Sample Qualification Test Failure. Refer to Section 4, STEP 4.4.2 of the AHRI General Operations Manual for details regarding the first sample qualification failure options:

STEP 2.1.4.4 Second Sample Qualification Test Failure. Refer to Section 4, STEP 4.4.3 of the AHRI General Operations Manual for details regarding the second sample qualification failure options.

STEP 2.1.5 Welcome to the Program. No further action required beyond that listed in Section 4, STEP 4.5 of the AHRI General Operations Manual.

2.2 Private Brand Marketer (PBM) Applicants. With the additions noted below, the PBM qualification process shall proceed according to the AHRI General Operations Manual, Section 5.

PBM Applicants are not required to undergo qualification testing. PBM product certification is contingent upon the certification of the associated OEM product.

STEP 2.2.1 Certification Application Package. In addition to the Application for AHRI Certification Form noted in the AHRI General Operations Manual, Section 5, STEP 5.1, Applicants shall submit the following documentation to AHRI:

- An Applicant requesting AHRI to submit data to CEC, DOE, and NRCan shall submit third-party authorization, compliance forms and other necessary information.

STEP 2.2.2 Processing Application Package.

STEP 2.2.2.1 Performance Certification Agreement for Private Brand Marketer (PBM Agreement). No further action required beyond that listed in Section 5, STEP 5.2.1 of the AHRI General Operations Manual.

STEP 2.2.2.2 OEM Agreement on Behalf of the PBM Applicant. No further action required beyond that listed in Section 5, STEP 5.2.2 of the AHRI General Operations Manual.

STEP 2.2.2.3 Licensing Fee Invoice. Payment of the Licensing Fee is due within 30 calendar days of the invoice issue date.

STEP 2.2.3 Welcome to the Program. No further action required beyond that listed in Section 5, STEP 5.3 of the AHRI General Operations Manual.

### 3. Equipment Selection and Testing

3.1 Annual Testing Requirement. For each program, 20% of a Participant's BMGs shall be tested annually, with a minimum of two (2) models per program. Fractional numbers shall be rounded to the nearest whole number using traditional rounding methods.

3.2 Location of Test. Testing shall be performed at the Laboratory and the sample shall be installed in the test facility in accordance with the Participant's published installation instructions in printed or electronic format.

3.3 Selection of Test Samples. Selections shall be made based on data contained in the Directory. AHRI shall inform the Participant, in writing, of the sample(s) selected for test.

3.4 Methods for Acquiring Test Samples. AHRI or the Laboratory personnel shall make a Random Sample Selection or Random Component Selection from the Participant’s stock inventory within 30 calendar days of selection by AHRI. AHRI, at its discretion, may request that a Laboratory Representative visit a Participant’s facility to make a random selection from the facility without sending prior notification about which model(s) has been selected for testing. Selected samples shall be shipped to the Laboratory accompanied by the Participant’s published installation instructions in printed or electronic format. Refer to Section 9 of the AHRI General Operations Manual.

3.4.1 Pretesting. Pretesting refers to a procedure by which models that have been chosen by AHRI for the test year undergo performance testing to validate ratings prior to arriving at the third party laboratory. This excludes normal quality checks that are performed on every unit. Once AHRI has chosen the specific model to test, the sample shall not be manipulated in any way by the Participant. Pretesting is specifically prohibited for the selection pool.

3.5 Sample Acquisition Timeframe. The Participant shall deliver the selected sample(s) to the Laboratory within 14 calendar days of Random Sample Selection, Random Component Selection, or Random Audit Selection by Laboratory personnel.

3.6 Test Set-up and Start-up Punch List. A complete equipment submittal shall include a Punch List of items that are specific to Performance Rating Testing. The Punch List shall include all unique considerations and a summary of items that shall be verified prior to the start of the first sample test. If there are no items, then the manufacturer shall submit a punch list clearly stating, “There are no special test set-up or installation considerations.”

The Punch List items shall be taken from the installation instructions that are available as part of the Participant’s product data, as well as the complete equipment submittal to the Laboratory. The Punch List shall not contradict the installation and operations manual provided by the Participant. If there is a discrepancy between notes written on the Punch List, Installation and Operations Manual, and/or the Directory, the Directory shall take precedent.

The Participant may choose to furnish a single Punch List for multiple units in electronic or paper format. It is the Participant’s responsibility to update the Punch List as it pertains to their PTAC and PTHP products.

3.7 Optional “Break-In” Period. A Participant may elect to instruct the Laboratory to operate the equipment for a manufacturer-specified number of “break-in” hours prior to beginning the Performance Tests. The Participant shall pay for all costs for this optional break-in operation.

3.8 Certified Data. In accordance with the Standard, the following certified ratings are verified by test:

| <b>Table 1: Certified Data</b>  |             |             |
|---|-------------|-------------|
|   | <b>PTAC</b> | <b>PTHP</b> |
| <b>Capacity Ratings (Btu/h)</b>   |             |             |
| Cooling   | ✓           | ✓           |
| Heating (High Temp.)  | ✓           | ✓           |
| <b>Efficiency Ratings</b>   |             |             |
| EER   | ✓           | ✓           |
| COP (47°)   |             | ✓           |
| (✓) Indicates information supplied by Participant and published in the Directory. |             |             |

3.9 Tests, PTAC. All PTACs shall be tested in accordance with the Standard to verify Cooling Capacity and EER. Additionally, systems which are capable of capacity reduction shall be rated at 100% (Full Load) and at each step of capacity reduction provided by the refrigeration system(s) as published by the manufacturer. These rating points shall be used to calculate an Integrated Part Load Value (IPLV). Tests shall be performed at the nameplate rated voltage and frequency specified in the Standard. Additionally the Maximum High-Temperature Operating Test (MOC) shall be performed.



Air filters built into units shall be left in place for verification testing.

3.10 Tests, PTHP. All PTHPs shall be tested in accordance with the Standard to verify Cooling and Heating Capacities, EER, and heating Coefficient of Performance (COP). Additionally, systems which are capable of capacity reduction shall be rated at 100% (Full Load) and at each step of capacity reduction provided by the refrigeration system(s) as published by the manufacturer. Tests shall be performed at the nameplate rated voltage and frequency specified in the Standard. Additionally the Maximum High-Temperature Operating Test (MOC) shall be performed.

Air filters built into units shall be left in place for verification testing.

### 3.11 Test Failures.

3.11.1 Operating Test Failure. If the initial failure includes MOC, the Participant shall obsolete all models within the same BMG or elect to have a second sample tested. If the second sample fails MOC, the BMG shall be obsolete.

3.11.2 Options Following First Sample Failure. When the Participant is notified of a first sample certified rating failure, the Participant has seven (7) calendar days to select one (1) of the following options:

- Re-rate all models within the failed sample's BMG proportionate to the failed test's results;
- Test second sample of the same model (sample shall be available within the timeframe and procedure allotted in Section 3.4 following notification of decision to AHRI via Manufacturer's Decision Form [MDF]); or
- Obsolete the model, which also obsoletes the corresponding BMG;

3.11.3 Options Following Second Sample Failure. When the Participant is notified of a second-sample certified rating failure, the Participant has seven (7) calendar days to select one (1) of the following options:

- Re-rate all models within the failed sample's BMG proportionate to the failed test's results; or
- Obsolete the model, which also obsoletes all models within the corresponding BMG.

## 4. Challenge Tests

Refer to Section 10 of the AHRI General Operations Manual.

## 5. AHRI Directory of Certified Product Ratings

All certified products shall be listed in the Directory, [www.ahridirectory.org](http://www.ahridirectory.org). Certification shall not be implied nor claimed for any product not listed in the Directory. Except as noted below, the Participant shall follow the steps outlined in Section 11 of the AHRI General Operations Manual.

5.1 Publication of Ratings in the Certified Directory. The following information pertaining to each model certified shall be published in the Directory:

| <b>Table 2: Publication of Certified Ratings in the Directory</b>                                 |             |             |
|---|-------------|-------------|
|   | <b>PTAC</b> | <b>PTHP</b> |
| AHRI Certified Reference Number   | ✓           | ✓           |
| Name of Manufacturer  | ✓           | ✓           |
| Model Status  | ✓           | ✓           |
| Brand Name  | ✓           | ✓           |
| Model Number  | ✓           | ✓           |
| Heat Type   | ✓           |             |
| Capacity Ratings (Btu/h)  |             |             |
| Cooling †   | ✓           | ✓           |
| Heating †   |             | ✓           |
| Electrical Resistance   | ✓           | ✓           |
| Efficiency Ratings  |             |             |
| EER †   | ✓           | ✓           |
| COP (47°F) †  |             | ✓           |
| (✓) Indicates information supplied by Participant and published in Directories.                   |             |             |
| (†) For units with Dual Voltage, the AHRI Directory will show certified ratings at both voltages. |             |             |

5.2 Data Submittal Sheets. Each Participant shall list its products by BMG. OEM and PBM Participants shall submit/edit product data via the Directory.

**6. Assessment and Payment of Certification Fees**

Refer to Section 12 of the AHRI General Operations Manual.

**7. Issuance of Violations and/or Termination**

Refer to Section 14 of the AHRI General Operations Manual.

**8. Program Hierarchy, Complaints, and the Appeals Process**

Refer to Section 15 of the AHRI General Operations Manual.

**9. Proper Use of the AHRI Certification Mark and Claims to Certification**

Refer to the AHRI Brand Usage Guide.