Site Address:	HERS Rater:	Date:

TMAH - Access Holes in Supply and Return Plenums of Air Handler

System Name or Identification/Tag						
System Location or Area Served						

1	☐Yes	☐No	5/16 inch (8 mm) access hole upstream of evaporative coil in the return plenum and labeled according to Figure in Section RA3.2.2.2.2.			
2	☐Yes	☐No	5/16 inch (8 mm) access hole downstream of evaporative coil in the supply plenum and labeled according to Figure in Section RA3.2.2.2.2.			

Yes to 1 and 2 is a pass.		Enter Pass or Fail	✔ ☐ Pass	✔ ☐ Fail

STMS - Sensor on the Evaporator Coil

System Name or Identification/Tag						

3	☐Yes	☐No	The sensor is factory installed, or field installed according to manufacturer's specifications, or is installed by methods/specifications approved by the Executive Director.
4	☐Yes	☐No	The sensor wire is terminated with a standard mini plug suitable for connection to a digital thermometer. The sensor mini plug is accessible to the installing technician and the HERS rater without changing the airflow through the condenser coil
5	☐Yes	☐No	When attached to a digital thermometer, the sensor provides an indication of the saturation temperature of the coil.

Yes to 3, 4, and 5 is a pass. N/A if STMS are not applicable. Otherwise enter Pass or Fail	Enter	✔ ☐ N/A	✔ ☐ Pass	✔ ☐ Fail

STMS - Sensor on the Condenser Coil

System Name or Identification/Tag						

6	☐Yes	☐No	The sensor is factory installed, or field installed according to manufacturer's specifications, or is installed by methods/specifications approved by the Executive Director.
7	☐Yes	☐No	The sensor wire is terminated with a standard mini plug suitable for connection to a digital thermometer. The sensor mini plug is accessible to the installing technician and the HERS rater without changing the airflow through the condenser coil
8	☐Yes	☐No	When attached to a digital thermometer, the sensor provides an indication of the saturation temperature of the coil.

Yes to 6, 7, and 8 is a pass. N/A if STMS are not applicable. Otherwise enter Pass or Fail	Enter	✔ ☐ N/A	✔ ☐ Pass	✔ ☐ Fail

Site Address:	HERS Rater	Date:

Standard Charge Measurement Procedure (for use if outdoor air dry-bulb temperature is 55 ºF or above)

Procedures for determining Refrigerant Charge using the Standard Charge Measurement Procedure are available in Reference Residential Appendix RA3.2. As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.

- *The system should be installed and charged in accordance with the manufacturer's specifications before starting this procedure.*
- *The system must meet minimum airflow requirements as prerequisite for a valid refrigerant charge test.*
- *If outdoor air dry-bulb temperature is less than 55 °F, the installer must use the RA3.2.3 Alternate Charge Measurement Procedure (Weigh-In Charging Method). If the Weigh-In Method is used, the dwelling cannot be included in a sample group for HERS verification compliance.*

Space Conditioning Systems

System Name or Identification/Tag				
System Location or Area Served				
Outdoor Unit Serial #				
Outdoor Unit Make				
Outdoor Unit Model				
Nominal Cooling Capacity (ton)				
Date of Verification				

Calibration of Diagnostic Instruments

Date of Refrigerant Gauge Calibration		(must be re-calibrated monthly)
Date of Thermocouple Calibration		(must be re-calibrated monthly)

Measured Temperatures (°F)

System Name or Identification/Tag				
Supply (evaporator leaving) air dry-bulb temperature ($T_{supply, db}$)				
Return (evaporator entering) air dry-bulb temperature ($T_{return, db}$)				
Return (evaporator entering) air wet-bulb temperature ($T_{return, wb}$)				
Evaporator saturation temperature ($T_{evaporator, sat}$)				
Condensor saturation temperature ($T_{condensor, sat}$)				
Suction line temperature ($T_{suction}$)				
Liquid Line Temperature (T_{liquid})				
Condenser (entering) air dry-bulb temperature ($T_{condenser, db}$)				

Site Address:	HERS Rater	Date:

Minimum Airflow Requirement

Temperature Split Method Calculations for determining Minimum Airflow Requirement for Refrigerant Charge Verification. The temperature split method is specified in Reference Residential Appendix RA3.2.

System Name or Identification/Tag				
Calculate: Actual Temperature Split = $T_{return, db} - T_{supply, db}$				
Target Temperature Split from Table RA3.2-3 using $T_{return, wb}$ and $T_{return, db}$				
Calculate difference: Actual Temperature Split – Target Temperature Split =				
Passes if difference is between -4°F and +4°F or upon remeasurement, if between -4°F and -100°F **Enter Pass or Fail**				

Note: Temperature Split Method Calculation is not necessary if actual Cooling Coil Airflow is verified using one of the airflow measurement procedures specified in Reference Residential Appendix RA3.3. If actual cooling coil airflow is measured, the value must be equal to or greater than the Calculated Minimum Airflow Requirement in the table below.

Calculated Minimum Airflow Requirement (CFM) = Nominal Cooling Capacity (ton) X 300 (cfm/ton)

System Name or Identification/Tag				
Calculated Minimum Airflow Requirement (CFM)				
Measured Airflow using RA3.3 procedures (CFM)				
Passes if measured airflow is greater than or equal to the calculated minimum airflow requirement. **Enter Pass or Fail**				

Superheat Charge Method Calculations for Refrigerant Charge Verification. This procedure is required to be used for fixed orifice metering device systems				
System Name or Identification/Tag				
Calculate: Actual Superheat = $T_{suction} - T_{evaporator, sat}$				
Target Superheat from Table RA3.2-2 using $T_{return, wb}$ and $T_{condenser, db}$				
Calculate difference: Actual Superheat – Target Superheat =				
System passes if difference is between -6°F and +6°F **Enter Pass or Fail**				

Site Address:	HERS Rater:	Date:

Subcooling Charge Method Calculations for Refrigerant Charge Verification. This procedure is required to be used for thermostatic expansion valve (TXV) and electronic expansion valve (EXV) systems.

System Name or Identification/Tag				
Calculate: Actual Subcooling = $T_{condenser, sat} - T_{liquid}$				
Target Subcooling specified by manufacturer				
Calculate difference: Actual Subcooling – Target Subcooling =				
System passes if difference is between -4°F and +4°F **Enter Pass or Fail**				

Metering Device Calculations for Refrigerant Charge Verification. This procedure is required to be used for thermostatic expansion valve (TXV) and electronic expansion valve (EXV) systems.

System Name or Identification/Tag				
Calculate: Actual Superheat = $T_{suction} - T_{evaporator, sat}$				
Enter allowable superheat range from manufacturer's specifications (or use range between 3°F and 26°F if manufacturer's specification is not available)				
System passes if actual superheat is within the allowable superheat range **Enter Pass or Fail**				

Standard Charge Measurement Summary:
System shall pass both refrigerant charge criteria, metering device criteria (if applicable), and minimum cooling coil airflow criteria based on measurements taken concurrently during system operation. If corrective actions were taken, all applicable verification criteria must be re-measured and/or recalculated.

System Name or Identification/Tag				
System meets all refrigerant charge and airflow requirements. **Enter Pass or Fail**				

☐PASS   ☐FAIL