



Setting the Standards for Home Energy Efficiency

Interpretation: HVAC Grading when No additional Charge is required for Mini-split or Multi-split Heat Pump

Designation IR 310-2025-010 (CF310-2020-001)

Approved: November 25, 2020, by RESNET SDC 300

Effective Date: December 25, 2020

Request from: Name: Michael Browne

Affiliation: Advanced Building Analysis, LLC / Energy Raters of Massachusetts, Inc.

Address: 2 Woodlawn St

City: Amesbury State: MA Zip: 01913

Telephone: 978-270-3911

E-mail: mike@advancedbuildinganalysis.com

Reference: This request for interpretation refers to the requirements presented in Standard:

ANSI/RESNET/AC
CA 310-2025

Page Number(s): page 42

Section(s): 801.5.2, Item 5, and 801.5.3.2

Table(s): _____

Relating to: “The length of liquid line accounted for in the factory-supplied charge”

Background: *Provided by person requesting the interpretation.*

Section 801.5.3.2 defines the term Ldefault as “the liquid line length accounted for by the factory-supplied charge, from Section 801.5.2, Item 5.” Section 801.5.2, Item 5, requires the Rater to collect “the length of liquid line accounted for in the factory-supplied charge” from the party responsible for charging the system. Footnote 21 clarifies that “Systems typically come charged from the factory to account for a default length of refrigerant line, often 15 feet. Manufacturer instructions will direct installers to add or remove refrigerant if the actual line length is longer or shorter than this default length.”

For a typical system, the factory-supplied charge will account for a single line length, such as 15 feet. However, for some advanced system types, such as some mini-split and multi-split models, the manufacturer provides a range of liquid line lengths, rather than a single number, that the factory-supplied charge can accommodate.

For an example, a Mitsubishi SUZ-KA18NAHZ outdoor unit comes with a factory charge that according to the installation instructions can accommodate a maximum of 100ft of ¼ inch liquid line. The instructions state that no charge needs to be added or removed as long as the max line length is less than 100ft.

In such cases, there is a range of values for the liquid line length that is acceptable and accounted for by the factory-supplied charge, and the standard does not clearly state which liquid line length value should be used for Ldefault.

Interpretation: *Provided by person requesting the interpretation.*

For systems where the factory-supplied charge accounts for a range of liquid line lengths, the value for Ldefault should reflect the length within that range that is closest to the measured liquid line length. For example, if the factory-supplied charge can accommodate a liquid line length for any length up to 100 feet, and the measured liquid line length is 60 ft, then the value used for Ldefault should be 60 ft.

The reason we need this interpretation is that if we use the maximum allowed length for Ldefault when the installed length is more than 5% shorter, the result will be Grade 3 due to not meeting the Grade 1 criteria of Section 801.6.4, Item 1: “The absolute value of the deviation between the total anticipated and total reported refrigerant weight, per Equation 8-15, is $\leq 5\%$ ”.

*(State what you consider the clarification should be. **Your interpretation must be stated such that the SDC can answer “Yes” or “No”.** Note: Interpretations are solely the opinion of the SDC. There is no public review or comment incorporated in their development. Interpretations should not create new requirements for national consensus standards.)*

Question: Is this Interpretation correct?

SDC Answer: Yes

SDC Comments