

ISO 18107:2026-02 (E)

Variable refrigerant flow air-to-air conditioners and air-to-air heat pumps - Testing and calculating methods for seasonal performance factors and energy performance mapping approach

Contents		Page
Foreword.....		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols	14
5	Cooling mode	19
5.1	Test.....	19
5.1.1	General.....	19
5.1.2	Test requirements.....	19
5.1.3	Temperature and humidity condition.....	21
5.1.4	Test conditions.....	23
5.1.5	Test methods.....	23
5.1.6	Cooling capacity test results.....	24
5.2	Calculations.....	24
6	Heating mode	25
6.1	Test.....	25
6.1.1	General.....	25
6.1.2	Test requirements.....	25
6.1.3	Temperature conditions.....	25
6.1.4	Test conditions.....	28
6.1.5	Test methods.....	32
6.2	Calculations.....	33
7	Test methods and uncertainties of measurements	33
7.1	Test methods.....	33
7.2	Uncertainty of measurement.....	33
7.3	Test tolerances.....	33
8	Test report	34
8.1	General.....	34
8.2	Adjustments.....	34
8.3	Data to be recorded.....	34
9	Publication of ratings	35
9.1	Standard ratings.....	35
9.2	Other ratings.....	36
10	Energy performance mapping approach for building simulation purposes	36
Annex A (normative) Calculations of annual performance factor (APF)		37
Annex B (normative) Calculations of the cooling seasonal performance factor (CSPF) for hot climates		52
Annex C (normative) Calculation of total annual performance factor (TAPF), total cooling seasonal performance factor (TCSPF) and total heating seasonal performance factor (THSPF)		56
Annex D (normative) Integrated energy efficiency ratio (IEER)		58
Annex E (normative) Calculation methods for $E_{ER,d}$, seasonal space cooling efficiency $\eta_{s,c}$, SEER and $S_{EER,on}$		60

Annex F (normative) Calculation method for $C_{OP,d}$, seasonal space heating efficiency $\eta_{s,h}$, SCOP, $S_{COP,on}$ and $S_{COP,net}$ of direct expansion system heat pumps	67
Annex G (normative) Test method for CSPF	75
Annex H (normative) Test method for HSPF	77
Annex I (normative) Refrigerant piping requirements	78
Annex J (normative) Requirements for rating	79
Annex K (normative) Airflow rate setting and measurement	80
Annex L (normative) Test methods for electric power input during thermostat off mode, standby mode, off mode and crankcase heater mode	83
Annex M (normative) Controls verification procedure (CVP) to verify one critical parameter - compressor speed	85
Annex N (normative) Controls verification procedure (CVP) for three critical parameters	92
Annex O (informative) Development of supplemental testing instructions for set-up and testing for three critical parameters CVP	99
Annex P (normative) Capacity test method and requirements for three critical parameters CVP	105
Annex Q (informative) Energy performance mapping approach for air-cooled VRF equipment	117
Annex R (informative) Heat recovery test for air-to-air units with integrated heat recovery	129
Annex S (informative) Recommended compliance criteria for performance testing	132
Annex T (informative) Defrost controls	133
Annex U (normative) Reference outdoor temperature bin distribution for cooling seasonal performance factor (CSPF) calculation for T3 climate	134
Annex V (normative) Applicable climate bins for calculating SEER, $S_{EER,on}$, SCOP, $S_{COP,on}$ and $S_{COP,net}$	136
Annex W (informative) Climate zone classification	139
Bibliography	140