



TECHNICAL CERTIFICATION RULES OF THE EUROVENT CERTIFIED PERFORMANCE MARK



AIR CONDITIONERS

Identification: ECP-1 AC

Revision 2 – 15/11/2023

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The purpose of this Technical Certification Rules is to prescribe procedures for the operation of the Eurovent Certified Performance (ECP) certification programme for AIR CONDITIONERS (AC), in accordance with the Certification Manual. In addition to the provisions laid down in the Certification Manual, all the requirements in this document apply

Modifications as against last version:

No.	Modifications	Section	Page
1	<i>Brand Name units can be tested</i>	<i>III.1.3.1</i>	<i>10</i>
2	<i>The Standard Heating point should be treated as a part load test when the second test is done on the same unit. This means that all second tests could only be done on the failed points. This section has been modified.</i>	<i>III.1.3.6.d</i>	<i>16</i>
3	<i>The calendar for the campaign has been modified</i>	<i>Appendix G</i>	
4	<i>The heating only product type should be included into the scope of the programme and added to the TCR in 2024</i>	<i>1.2</i>	<i>6</i>

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I. GENERAL INFORMATION

I.1. Scope

I.1.1. General

The programme scope is divided in three sub-programmes, as it applies to air conditioners in the following groups:

- Comfort air cooled air conditioners and air/air heat pumps rated up to or equal to 12 kW in cooling capacity, except double duct and single duct units (**AC1 ≤ 12 kW**) ;
- Comfort air conditioners rated from 12 kW up to but not including 50 kW in cooling capacity (**12 kW < AC2 < 50 kW**);
- Comfort air conditioners rated from 50 kW up to or equal to 100 kW in cooling capacity (**50 kW ≤ AC3 ≤ 100 kW**);

Companies may apply to participate in any of the above certification sub-programmes.

Are included in the AC1 scope:

- Split units
- Multisplit with data declared and published as combination of outdoor and indoor units with 2 indoor units only: each unit individually connected to the outdoor unit and with an expansion device inside the outdoor unit. The 2 indoor units have to be of the same mounting type. Capacity ratio must be 1 ± 0.05 .
- Declared Water-cooled units

Are excluded from the AC1 scope:

- Variable Refrigerant flow Systems (see differences with ACs in the paragraph I.3)
- AC1 multisplit with 3 or more indoor units
- Single duct mono-bloc mobile air conditioners;
- Packaged combined air conditioning and control mechanical ventilation;
- Air conditioners up to 12 kW not fulfilling the requirements of Commission regulation (EU) No. 206/2102 (see Appendix D).

Are included in the AC2 and AC3 scopes:

- Split units
- Multisplit units, with data declared and published of the outdoor unit. The programme covers multisplit units combined with the same type of indoor units. The number of indoor units is limited as 2. Combinations with 3 or more indoor units are optional.
- The maximum of indoor units is prescribed in Table 1 below:

Table 1 : Maximum of indoor units depending on the capacity

Capacity	12 kW ≤ capacity < 30 kW	30 kW ≤ capacity < 50 kW	Capacity ≥ 50 kW
Number of indoor units	4	6	8

Are excluded from the AC2 & AC3 scope:

- Variable Refrigerant flow Systems (see differences with ACs in the paragraph I.3)
- AC2 and AC3 multi-splits with data declared and published as combinations of outdoor + Indoors
- Single duct mono-bloc mobile air conditioners;

- Packaged combined air conditioning and control mechanical ventilation;
- Units not fulfilling the requirements of Regulation 2016/2281 (see Appendix E).

I.1.2. Certify-all principle

Whenever a company participates in one of the sub-programmes for AC (AC1, AC2, AC3), all production models that are promoted by the applicant/participant/applicant to end-users, specifiers, trading companies, contractors by all means shall be certified, in accordance with this Technical Certification Rules. This includes all models in modular ranges. For the AC programme, the certify-all requirement as defined in the Certification Manual is applicable.

I.2. Certified performances

The performances are certified at the rating conditions only in accordance with EN 14511:2022, EN14825:2022, Commission Regulation (EU) No. 206/2012 and Commission Regulation (EU) No. 2016/2281. (See appendix A.3.).

Certified performance items:

- Outdoor cooling capacity at standard conditions
- Outdoor Energy Efficiency Ratio in cooling EER
- Bivalent Temperature (for each climate declared)
- Performances at bivalent temperature (Ph and COP)
- Tol operation limit temperature (only AC1)
- Performances at Tol (Ph and COP) for AC1
- Outdoor Heating capacity at standard conditions (for each declared climate)
- Outdoor Coefficient of Performances in heating COP
- Seasonal Energy Efficiency Ratio SEER
- Seasonal part loads in cooling mode (Pc and EER)
- Seasonal space cooling efficiency η_{sc} (only for AC2 & AC3)
- Annual electric power consumption in cooling mode Qce (only AC1)
- Seasonal Coefficient Of Performance SCOP (for each climate declared)
- Seasonal space heating efficiency η_{sh} (only for AC2 & AC3)
- Seasonal part loads in heating mode (Ph and COP)
- Annual electric power consumption in heating mode Qhe (for each climate declared) (only AC1)
- Auxiliary Power consumption (only AC1)
- A-weighted indoor side sound power
- A-weighted outdoor side sound power
- A-weighted sound power radiated from the duct (ducted units)
- P_{sb} in cooling (only AC1)

In option, for AC1, AC2, and AC3:

- LRcontminc and CcpLRcontminc in cooling
- LRcontminh and CcpLRcontminh in heating
- P_{sb} in cooling and in heating if relevant (for AC2 and AC3)

The units can be declared in cooling only, heating only or reversible mode.

I.3. Definitions

In addition to the definitions specified in the Certification Manual and the definitions given in EN14511:2022 and EN14825:2022, the following definitions apply:

I.3.1. Basic Model Group (BMG)

Each Participant/applicant declaration list will be grouped in Basic Model Groups (BMG). A basic model shall be defined by units within the same commercial range which are essentially the same in terms of thermal performance (10% deviation on capacity) and function (cooling or heating) and the same or comparable in terms of basic components, specifically fans, coils, compressors and motors. In the case of split packaged units, the unit containing the compressor shall be the reference unit

I.3.2. LRcontmin

LRcontmin is defined as the minimum continuous operation load ratio, i.e. the minimum continuous operation load heating (or cooling) capacity divided by the heating (or cooling) capacity measured in the standard rating test conditions.

I.3.3. AC versus VRF

The differences between AC units and VRF units are described in the Table 2 below:

Table 2: Differences between AC and VRF units

AC	VRF
Not individual operation control with a single refrigerant line	Individual operation control (whatever the mode) of indoor units with a single refrigerant line without additional control boxes
Individual operation control on the same mode with multiple refrigerant lines	Expansion valve close or inside indoor units

I.4. Contributors

The lists of contributors are given for information and may be modified by Eurovent Certita Certification whenever necessary.

I.4.1. Audit body

The audit functions are performed by the following body(ies), called audit body:

EUROVENT CERTITA CERTIFICATION SAS	✉ : Morning, Laffitte 34 rue Laffitte 75009 Paris www.eurovent-certification.com	☎ : + 33 1 75 44 71 71
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I.4.1. Independent laboratory / test body

When the checks carried out involve product tests, these are performed at the request of Eurovent Certita Certification by the following laboratory, known as independent laboratory:

CEIS : Centro de Ensayos Innovación y Servicios	✉ : Cr. de Villaviciosa de Odón a Móstoles, Km. 1,5, 28935 Móstoles (Madrid) Spain	☎ : +34 916 169 710
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II. REQUIREMENTS OF THE REFERENCE DOCUMENT

II.1. Reference documents

II.1.1. Product and test standards

The test procedure is detailed in the Appendix A and in the product and test standards.

The applicable standards are as follow (non-exhaustive list):

II.1.1.1. Tests method standard

- Performance testing using the calorimeter room method (recommendable whenever possible): EN 14511-3:2022 “Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling”. The calorimeter room method is valid for AC1 and AC2 units.
- Performance testing using the air enthalpy method: EN 14511-3:2022 “Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling”. The air enthalpy method is applied for AC2 and AC3 units

II.1.1.2. Tests conditions standard

- EN 14825:2022 “Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling. Testing and rating at part load conditions and calculation of seasonal performance”.
- TOL verification: EN 14511-4:2022 “Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling”. The unit should be tested at the temperature conditions indicated by the manufacturer at the lowest outdoor operating temperature and in accordance with the requirement set in the Commission Regulation (EU) No 206/2012 and the laboratory testing capacity.
- Acoustical testing: EN 12102-1:2022 “Air conditioners, liquid chilling packages, heat pumps and dehumidifiers with electrically driven compressors for space heating and cooling - Measurement of airborne noise - Determination of the sound power level”

II.2. Marking

It is highly recommended that the participating company indicates participation in the EUROVENT CERTIFIED PERFORMANCE (ECP) programme for air conditioners. The provisions of the Certification Manual apply.

II.2.1. Display of Eurovent Certified Performance mark on production units

The provisions of the Certification Manual apply.

II.2.2. Display of Eurovent Certified Performance mark on technical documentation

The provisions of the Certification Manual apply.

III. CERTIFICATION PROCESS

III.1. Admission procedure

For the admission procedure, the campaign schedule on the appendix G is not applicable.

III.1.1. Declaration of data

The applicant, after signing the Certification Agreement, shall send to Eurovent Certita Certification all the information required for the qualification: the Declaration files and relevant literature. The forms

shall be sent by e-mail to Eurovent Certita Certification within the time limits specified in Certification Schedule (see Appendix G, if applicable).

Copies of the forms are part of this Technical Certification Rules (see Appendix B)

The participant shall use suitable means to identify the products by a unique identification code (the minimum traceable information: production plant, N° of lot, components), and the retention of documented information (records) necessary to enable traceability.

III.1.1.1. Declaration file AC1

The form *Declaration file VRF* will be used for manufacturing companies (Original Equipment Manufacturer – OEM) to declare ranges, Basic Model Groups (BMG), performance ratings and technical data such as: models (split or multisplit units) and its range, data, mounting type, geographical market. Factory refrigerant charge and its corresponding pipe length¹ The *Declaration file VRF* is send to Brand Name (BN) companies to identify the corresponding model's number of the original equipment manufacturer

Each combination will be declared using the following mountings:

- Ducted
- Wall mounted
- Floor standing
- Ceiling suspended
- Console
- Cassette.

Other mountings or old codifications are not allowed.

AC1 multisplit:

It is mandatory to declare one combination with wall mounted indoor unit(s). Other combinations are optional: ducted, cassette etc...

The units can be declared in cooling only, heating only or reversible mode.

III.1.1.2. Declaration file AC2 and AC3

The form *Declaration file AC2 and AC3* will be used for declaring all the combinations of indoor units of every specific outdoor unit for AC2 and AC3 multi-splits. It must be completed for each different declared performance of each outdoor unit that the manufacturer has chosen to specify. This form will indicate the limited quantity of combinations possible for test.

Each combination is composed by one outdoor unit (and its declared values) associated to one or multiple indoor units:

- The indoor units shall be of the same mounting type: ducted or cassettes or wall mounted, but not a mix of types.
- The range of the indoor units shall be identical if possible. The range shall be selected following the rules below:
 - The Table 2 : Maximum of indoor units depending on the capacity shall always be respected
 - If a system capacity ratio of 100 + / - 5 % can be reached with the same range of indoor unit than the tests shall be done using this combinations
 - If a system capacity ratio of 100 + / - 5 % cannot be reached with the same range of indoor unit : sizes as similar as possible with the quantity of indoor units as close as possible but not more than the prescribed quantity in Table 1 shall be used to meet the system capacity ratio within 100 + / - 5%

¹ it should be consistent with table A.2

Eurovent Certita Certification will check that the indoor unit combinations defined by the manufacturer in *Declaration file AC2 and AC3* are the possible ones from the strict application of the combination rules above

AC2/AC3 multisplit:

It is mandatory to declare one combination with cassette indoor unit(s). Other combinations are optional: ducted, wall-mounted etc...

AC2/AC3:

Combinations with different indoor unit ranges can be declared for Brand Name (BN) companies to identify the corresponding model's number of the original equipment manufacturer

The units can be declared in cooling only, heating only or reversible mode.

III.1.2. Admissibility of the application

Eurovent Certita Certification proceeds to the selection of units to be tested based on the declaration file. Eurovent Certita Certification requests *the Declaration file (AC1 or AC2 and AC3)* together with the *Technical data sheet file (TDS)*, *Starting procedure* and the selected units' delivery to the laboratory for the application to be admissible. The independent laboratory staff can then proceed to the products performances testing according to the procedure detailed in the sections below.

III.1.3. Implementation of checking operations

III.1.3.1. Selection of units and performances to be tested

Eurovent Certita Certification shall select units to be tested based on its evaluation of the *Declaration file AC1* and *Declaration file AC2 and AC3* communicated by the applicant. At least one (1) unit per Basic Model Group (BMG) shall be selected to cover the variations declared (see BMG definition).

The samples necessary for carrying out the tests may be taken:

- either from the Participant/applicant production line
- or a stocking point
- ECC can also select brand name product from the OEM list to be tested

Within the programme, tests may be conducted under the following procedures:

- Scheduled tests in admission procedure
- Scheduled tests in surveillance procedure
- Penalty test
- Challenge procedure test

a. Number of units to be tested

The number of units tested each year per participant/applicant shall be as follows:

- 8% (rounded, at least 1) of the number of the listed basic model groups for AC1
- 10% (rounded, at least 1) of the number of the listed basic model groups for AC2, AC3.

Examples of rounding (with 10%):

- 7 BMG \Rightarrow 1 selected unit;
- 14 BMG \Rightarrow 1 selected unit;
- 15 BMG \Rightarrow 2 selected units;

The participant/applicant should provide several serial numbers by unit to guarantee that the unit is not specially designed for the test.

b. Thermal measurements for AC1

For certification of seasonal efficiency, 30% of the selected units (minimum one unit) shall have the following measurements and conditions tested:

- One running test at Tol. If for the average climate $T_{ol} \geq -10^{\circ}\text{C}$ and a measurement has to be made at Tol (chosen condition), the running test is unnecessary.
- One point at the standard condition full load, i.e. condition A (35°C) in cooling mode at $T_{designC}$
- One point at $+7^{\circ}\text{C}$ standard rating condition in heating mode, as specified in EN14511-2:2022. (if declared)
- One point to be chosen by Eurovent Certita Certification at part load condition in cooling mode between B, C or D
- One point at the condition F at T_{biv} in heating mode for the average climate (mandatory to declare)
- One point at the condition F at T_{biv} in heating mode for each additional optional declared climate
- One point to be chosen by Eurovent Certita Certification at part load condition in heating mode between A (if different from F), B (if different from F), C, D or E (if $\neq F$) for the average climate
- One point to be chosen by Eurovent Certita Certification at part load condition in heating mode between A (if different from F), B (if different from F), C, D or E (if $\neq F$) for each additional optional declared climate
- Tests of Poff, Psb and Pto (cooling mode).
- Pck whenever relevant (in alternance with Poff, Psb and Pto)
- Test of Cd if declared at a different value than the default value (0.25).

For the remaining selected units from the conditions listed above:

- One point selected by Eurovent Certita Certification in cooling
- One point selected by Eurovent Certita Certification in heating

This can be summarized in the following Table:

Table 3 : Thermal measurements of AC1 units

Conditions		30%	70%
Running test at Tol		X	
cooling	A (standard $+35^{\circ}\text{C}$ full load) at $T_{designC}$	X	
	One point between : B, C, D	X	
heating	nominal ($+7^{\circ}\text{C}$ standard rating condition)	(X)	
	F at T_{biv} for the average climate	X	
	F at T_{biv} for each additional climate	(X)	
	One point between : A (at part load, if $\neq F$), B (if $\neq F$), C, D or E (if $\neq F$) for the average climate	X	
	One point between : A (at part load, if $\neq F$), B (if $\neq F$), C, D or E (if $\neq F$) for each additional climate	(X)	
Poff		X	
Psb		X	
Pto		X	
Pck		X	
Cd (if not 0.25)		(X)	
cooling	One point between : A (full Load), B, C, D		X
heating	One point between : F_{avg} , F_{colder} , F_{warmer} , A (part load), B, C, D, E (if $\neq F$)		X

(X) To be tested if declared only

c. Thermal measurements for AC1 Water Cooled Units

At standard rating conditions, in cooling and heating as specified in EN14511-2:2022 (no test at part load conditions).

d. Acoustic measurements for AC1

A-weighted sound power level test for indoor(s) and outdoor shall be carried out for all units selected in cooling mode.

e. Thermal measurements for AC2 and AC3

The following measurements shall be tested:

- One point at the standard condition full load, i.e. condition A (35°C) in cooling mode at T_{designC}
- One point at +7°C standard rating condition in heating mode, as specified in EN14511-2:2022. (if declared)
- One point to be chosen by Eurovent Certita Certification at part load condition in cooling mode between B, C or D
- One point at the condition F at T_{bivalent} in heating mode for the average climate (mandatory to declare)
- One point at the condition F at T_{bivalent} in heating mode for each additional optional declared climate
- One point to be chosen by Eurovent Certita Certification at part load condition in heating mode between A (if different from F), B (if different from F), C, D or E (if ≠F)
- One point to be chosen by Eurovent Certita Certification at part load condition in heating mode between A (if different from F), B (if different from F), C, D or E (if ≠F) for each additional optional declared climate
- One test among P_{sb}, P_{to}, P_{off} and P_{ck} in cooling mode
- One test among P_{sb}, P_{to}, P_{off} and P_{ck} in heating mode
- Test of C_d if declared at a different value than the default value (0.25).

This can be summarized in the following Table:

Table 4: Thermal measurements of AC2 & AC3 ai-to-air units

Conditions		All units, if applicable
Running test at Tol		X
Cooling	A (standard +35°C full load) at T _{designC}	X
	One point between : B, C, D	X
Heating	nominal (+7°C standard rating condition)	(X)
	F at T _{biv} for the average climate	X
	F at T _{biv} for each additional climate	(X)
	One point between : A (at part load, if ≠F), B (if ≠F), C, D or E (if ≠F) for the average climate	X
Auxiliaries	One point between P _{off} , P _{sb} , P _{to} , P _{ck} in cooling	X
	One point between P _{off} , P _{sb} , P _{to} , P _{ck} in heating	X
Cd (if not 0.25)		(X)

(X) To be tested if declared only

f. Acoustic measurements for AC2 and AC3

A-weighted sound power level test for indoor(s) and outdoor shall be carried out for all units selected:

- in cooling mode for cooling only units
- in cooling mode or in heating mode for reversible units (Randomly chosen by Eurovent Certita Certification)

For multisplit units, the declaration of the A-weighted sound power level for indoor units is optional, it will be tested only if declared.

For 3 & more indoor units (optional declaration), an additional cost for indoor unit acoustic measurements will be charged, in case of different capacity / reference of indoor units. A-weighted sound power level test for indoor(s) and outdoor shall be carried out for all units selected:

- in cooling mode for cooling only units
- in cooling mode or in heating mode for reversible units (Randomly chosen by Eurovent Certita Certification)

g. Optional performances for AC1, AC2 and AC3

If declared in cooling and/or heating mode, the performances LRcontmin & CcpLRcontmin shall be tested. If both modes are declared, Eurovent Certita Certification will choose to test only one of them. The definition and testing methods are described in Appendix A. These optional performances can be declared only by BMG and not for all the declared products.

For the heating application, declaration at warmer and colder climate is optional.

III.1.3.2. Shipment to the laboratory

Once the samples necessary for carrying out the tests are ready, they shall be delivered to the Laboratory by the participant/applicant. All transport fees shall be covered by the participant/applicant. The laboratory shall not engage any transport fees.

A contact person shall be designated by the Participant/applicant to organise the shipment to the laboratory, the laboratory shall inform him when the test is completed.

The Laboratory shall have the responsibility of un-crating, handling and testing the units.

Deadline for delivery of units to the laboratory together with the technical forms duly completed, the starting procedure and the payment/order⁴ is given in the Certification Schedule (see Appendix G).

If units, technical forms, starting procedures and payment/orders are not delivered within the time limits specified in the notification received from Eurovent Certita Certification, it is considered as non-application of procedures (see Certification Manual). The unit is not considered as delivered when missing any documentation or software

III.1.3.3. Tests at the independent laboratory

The specifications for the testing facility of the independent laboratory are given below:

Table 5: Specifications for the testing at the independent laboratory CEIS

Water side	
Maximum water flow	45 m ³ /h
Temperatures	2 to 70°C
Air side	
Maximum air flow	17.900 m ³ /h (units < 30kW) 36.000 m ³ /h (units from 30kW to 100 kW)
Outdoor Temperatures	from -22 to 54 °C
Relative humidity	up to 95%

⁴ Depending of the license agreement signed between Eurovent Certita Certification and the manufacturer.

a. Technical data sheet file and Starting Procedure

The *Technical data sheet* is a file sent by Eurovent Certita Certification and filled by the participant/applicant. It will be used to complete technical descriptions of all raw material or incoming goods for the units selected. It shall be completed and sent back to Eurovent Certita Certification with *The Starting Procedure* explaining how to start the unit and to reach the proper frequency of the motor. It shall also include a contact person the laboratory can reach in case of problem and the instruction for the scrapping or returning of the units after the tests. (see Appendix B)

Before testing, the laboratory shall check the product against the information declared in the technical datasheet to ensure that the unit corresponds to the selection.

The laboratory shall not perform the test and contact Eurovent Certita Certification if:

- one of the information is not compliant with the technical datasheet (see technical appendix),
- one of the units appears damaged

Eurovent Certita Certification will contact the applicant to give instructions regarding further actions.

b. Installation and preparation of the units to be tested

Units shall be installed in the test facility in accordance with the Participant/applicant published installation instructions. This information has to be readable in English.

It is not allowed to share accessories, pieces or devices between different selected models (example: Remote control...). Each unit must be sent to the lab with all needed accessories to be tested independently of any other, for example remote control, laptops (with instructions or screenshots), distribution kit, or any tool that can be used to set up the unit.

The Participant/applicant will provide the laboratory with full information about the installation, including at least the following items:

- any adjustment of the fan speeds (change of connector, switches, etc.);
- any adjustment of the compressor frequency;
- any change of the settings for any part of the unit (for instance, switch for floor/ceiling mounting, switch for cooling only/heat pump unit, etc.);
- maximum external static pressure for ducted units;
- exact location of the refrigerant piping for multisplit systems, above all for units intended for more than 2 indoor units;
- any other information necessary to the correct installation of the unit.

The laboratory shall install and check out the units. The procedures used shall be in accordance with the Participant/applicant *Technical data sheet* and *Start-up procedure*

c. Participant/applicant's personnel assistance

Participant/applicant personnel can be allowed to attend the setting-up and the starting of the unit on request (for inverter units for example) but not the test itself and are not permitted in the laboratory test room facility.

The attendance of the participant/applicant's personnel shall be indicated in the *Technical data sheet*

During the startup procedure, the participant/applicant is allowed to enter the laboratory facility, but the participant/applicant is forbidden to access the test control room at any time

Prior to the test, the Laboratory personnel are only allowed to:

- Repair leaks
- Repair or replace items damaged by shipping or handling
- Assure correct refrigerant charge
- Assure correct fan speed(s) where adjustable speed fans are used

If the unit is not repairable, it shall be replaced by the Participant/applicant.

A remote assistance to the test by the participant/applicant's personnel is possible.

d. Data shared before the test

During the startup procedure, the following data can be shared:

- Compressor frequency*
- Fan speed*
- Power input
- Room temperatures inside tolerances

The data mentioned above are not always available and they are measured by indirect methods.

e. Startup allowed time and procedure to follow

- During the startup procedure, the participant/applicant is allowed to enter the laboratory facility, but the participant/applicant is forbidden to access the test control room at any time.
- *The startup procedure* has to be introduced by the lab personnel even if a laptop is required, that is why all of the instructions have to be provided in English. If the participant/applicant fails to do so and he is the only one capable to introduce *the startup procedure* it will appear on the test report.
- Once the startup procedure is introduced and the right setting conditions have been achieved the participant/applicant is no more allowed at the laboratory (example: if the units are on the right setting condition after 10 minutes, the participant/applicant is no more allowed to the lab).
- If the units fail to reach the right conditions, the manufacturer has 1 hour as maximum time to make some adjustments and after such period the lab has the right to invoice the additional time and to do not guarantee the test completion in the scheduled test day.

f. Data shared during or after the test

No results will be given by the laboratory to the manufacturer neither during nor after the test. Eurovent Certita certification is the responsible to provide the results and their interpretation.

III.1.3.4. Test conditions

The tests shall be conducted at the conditions stated in Appendix A.

III.1.3.5. Reporting of test result file

For models tested, the *Reporting of test result file* is sent by Eurovent Certita Certification, showing the deviations between claimed and measured data.

III.1.3.6. Failure treatment

a. Initial test failure

If any functional component is inoperative, or the unit is damaged and cannot be repaired at the Laboratory, the unit is considered as an "initial test failure". A new unit shall then be delivered within 2 weeks.

It is also admitted that defrost during the thermal or acoustic test at +7°C is an "initial test failure" when:

- According to the standard:
 - Auto-defrost by reversal cycle
 - ΔT decreases by more than 2,5 % after steady state (see the standard EN 14511:2022)
- According to the PA declaration this is an unusual/unexpected behaviour of the unit.

If two initial test failures happen successively, the following procedure is applied:

- The participant/applicant shall analyze and provide an explanation of the failures
- The product is removed from the declaration list and from manufacturer's catalogue
- If the participant/applicant still wants to have the product certified, the product shall be tested again successfully
- A penalty test will be applied for the test campaign N+1

- The non-results will be considered in the MVF calculation as a high failure

b. Failure to meet the required capacity ratio (variable capacity) for AC1, AC2 & AC3

If the tested capacity ratio fails to reach the required load ratio within $\pm 10\%$ for variable capacity units, the following steps shall be applied:

- Step 1: The laboratory should contact immediately the Applicant/Participant to acquire the information to test the closest of the required load to reach the targeted capacity $\pm 10\%$.
- Step 2: The manufacturer has 2 working days to either provide new instructions, accept a rerate, or declaring an error in the declaration list. If the manufacturer fails to provide new instructions on time the unit will be considered as initial test failure.
- In case the part load test is out of the 10% in capacity, only one test repetition is permitted.
- In case the part load test is out of the 10% in capacity after the second attempt, The manufacturer has 2 working days to accept a rerate. Passing this delay, the unit will be considered as initial test failure.
- The laboratory should proceed with the other required testing points while waiting for the new instructions. The 2 working days delay do not prevent a new installation

c. Failure of general performances

For each test, a performance item fails when the difference between the declared value and the measurement differs by more than the acceptable acceptance criteria (see Appendix A). A test fails when one or more performance items fail.

For each failed test, the Applicant/Participant/applicant has 4 weeks after notification of failure to choose between one of the following alternatives:

- Re-rate the products in accordance with the re-rating rules (see dedicated chapter below);
- Ask for a second test on the same unit;
- Ask for a second test on another unit of the same model selected by Eurovent Certified Certification.

d. Second test

The paragraph II.2. and the article 117 of the Certification Manual is applicable in case of a second test.

Second test on the same unit: If the second test is performed on the same unit without any modification on the unit, and not leaving the laboratory :

- The second test can repeat just the failed points
- The participant/applicant has the right to choose a complete seasonal test (all points, including all auxiliaries).

Second test on a new unit : If the second test is performed on a repaired or a new unit, or if the participant/applicant has shipped back the unit, the points to be tested are the same as the first test.

Re-rate : If the second test is unsuccessful, the Participant/applicant shall re-rate according to the results from the second test and the re-rating rules. The surveillance procedure does not allow for a third test.

e. Failure at TOL

If the unit fails to start and operate continually for 30 min at Tol the Applicant/Participant has 2 weeks to choose from the following alternatives:

- Change Tol and ask for a second test on the same unit (SCOP to be recalculated)
- Change Tol to the lowest fully tested outdoor temperature (-7°C for average climate, SCOP to be recalculated)

- Maintain Tol and ask for a second test on the same unit

III.1.3.7. Re-rating rules

For each failed test, the model shall be re-rated according to the following rules:

a. Proposal of rerate file

For models tested with failures, the *Proposal of rerate file* is sent by Eurovent Certita Certification, showing the list of products affected by the failed test and their proposal of rerate. (See annexe B)

b. Rerating of TOL

If Tol has been changed for the second tests and the second measurement passed, Tol is rerated at the changed value.

If during the second test, second measurement has also failed, Tol will be rerated at the tested point with the lowest outdoor temperature (-7°C for average climate).

c. Seasonal efficiency points: rerating of design load

Whenever the test at extreme/bivalent condition shows a deviation on capacity larger than the allowed acceptance criteria, the design load is rerated according to the measured deviation for all models in the same basic model group.

d. Rerating of auxiliary power consumption

Whenever the test on auxiliary power consumption shows a deviation larger than the allowed acceptance criteria, the auxiliary power consumption is rerated according to the measured deviation for all models in the same basic model group.

Available also for the optional Psb in Heating.

e. Rerating when capacity and/or efficiency fails

In case of failure on capacity and/or efficiency, then capacity, efficiency and power input of the tested model shall be rerated to the measured values:

- Deviation on capacity shall be applied to all models in the same basic model group (BMG).
- Deviation on efficiency shall be applied to all models in the same BMG.
- Power input shall be recalculated for all models in the same BMG.

Table 6: Cooling - EER - Complete test (30% units)

Example 1 - EER				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
A	35	-2%	P	EER _{A, declared}
B	30			EER _{B, declared} -12%
C	25	-12%	F	EER _{C, measured}
D	20			EER _{D, declared} -12%

Example 2 - EER				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
A	35	-12%	F	EER _{A, measured}
B	30			EER _{B, declared}
C	25	-2%	P	EER _{C, declared}
D	20			EER _{D, declared}

Example 3 - EER				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
A	35	-11%	F	EER _{A, measured}
B	30			EER _{B, declared} -12%
C	25	-12%	F	EER _{C, measured}
D	20			EER _{D, declared} -12%

Table 7: Cooling - Complete test (30% units) Other points

Power consumption	Deviation	Passed / Failed	Rerate SEER with
P _{off}		P	P _{off, declared}
P _{sb}		P	P _{sb, declared}
P _{to}	12%	F	P _{to, measured}
P _{ck}			P _{ck, declared}

Table 8: Cooling - EER – Partial test (70% units)

Example 1 - EER				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
A	35			EER _{A, declared}
B	30			EER _{B, declared} -12%
C	25	-12%	F	EER _{C, measured}
D	20			EER _{D, declared} -12%

Example 2 - EER				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
A	35	-12%	F	EER _{A, measured}
B	30			EER _{B, declared}
C	25			EER _{C, declared}
D	20			EER _{D, declared}

Table 9: Heating - COP - Complete test (30% units)

Example 1 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SCOP with
E	Tol	(unit running at TOL)	P	TOL _{declared}
F	T _{biv}	-11%	F	COP _{Tbiv, measured}
A	-7			COP _{A, declared} -12%
B	2	-12%	F	COP _{B, measured}
C	7			COP _{C, declared} -12%
D	12			COP _{D, declared} -12%

Example 2 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol	(unit running at TOL)	P	TOL _{declared}
F (-7°)	Tbiv	-11%	F	COP _{tbiv,measured}
A	-7	-11%	F	COP _{A,declared} -11%
B	2	-12%	F	COP _{B,measured}
C	7			COP _{C,declared} -12%
D	12			COP _{C,declared} -12%

Example 3 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol	(not running at TOL)	F	Tol _{rerated}
F	Tbiv		P	COP _{tbiv,declared}
A	-7			COP _{A,declared}
B	2		P	COP _{B,declared}
C	7			COP _{C,declared}
D	12			COP _{D,declared}

Table 10: Heating - Complete test (30% units) Other points

Power consumption	Deviation	Passed / Failed	Rerate SEER with
P _{off}		P	P _{off,declared}
P _{sb}		P	P _{sb,declared}
P _{to}	12%	F	P _{to, measured}
P _{ck}			P _{ck,declared}
Ph Tbiv	-12%	F	Ph Tbiv _{measured}
P _{designh}			P _{designh,declared} -12%

The rerated P_{designh} is used to calculate the rerated SCOP

Table 11: Heating - COP – Partial test (70% units)

Example 1 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol			TOL _{declared}
F	Tbiv			COP _{tbiv,declared}
A	-7			COP _{A,declared} -12%
B	2	-12%	F	COP _{B,measured}
C	7			COP _{C,declared} -12%
D	12			COP _{D,declared} -12%

Example 2 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol			TOL _{declared}
F	Tbiv	-11%	F	COP _{tbiv,measured}
A	-7			COP _{A,declared}
B	2			COP _{B,declared}
C	7			COP _{C,declared}
D	12			COP _{D,declared}

Table 12: Heating - COP - Complete test (30% units) – Colder climate

Example 1 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SCOP with
E	Tol	(unit running at TOL)	P	TOL _{declared}
F	Tbiv	-11%	F	COP _{tbiv,measured}
A	-7			COP _{A,declared} -12%
B	2			COP _{C,declared} -12%
C	7			COP _{C,declared} -12%
G	-15	-12%	F	COP _{B,measured}

Example 2 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol	(unit running at TOL)	P	TOL _{declared}
F (-7°)	Tbiv	-11%	F	COP _{tbiv,measured}
A	-7	-11%	F	COP _{A,declared} -11%
B	2	-12%	F	COP _{B,measured}
C	7			COP _{C,declared} -12%
G	-15			COP _{C,declared} -12%

Example 3 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol	(not running at TOL)	F	Tol _{rerated}
F	Tbiv		P	COP _{tbiv,declared}
A	-7			COP _{A,declared}
B	2		P	COP _{B,declared}
C	7			COP _{C,declared}
G	-15			COP _{D,declared}

Table 13: Heating - Complete test (30% units) Other points – Colder climate

Power consumption	Deviation	Passed / Failed	Rerate SEER with
P _{off}		P	P _{off,declared}
P _{sb}		P	P _{sb,declared}
P _{to}	12%	F	P _{to,measured}
P _{ck}			P _{ck,declared}
Ph Tbiv	-12%	F	Ph _{Tbiv,measured}
P _{designh}			P _{designh,declared} -12%

The rerated P_{designh} is used to calculate the rerated SCOP

Table 14: Heating - COP – Partial test (70% units) – Colder Climate

Example 1 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol			TOL _{declared}
F	Tbiv			COP _{tbiv,declared}
A	-7			COP _{A,declared} -12%
B	2			COP _{C,declared} -12%
C	7			COP _{C,declared} -12%
G	-15	-12%	F	COP _{B,measured}

Example 2 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol			TOL _{declared}
F	Tbiv	-11%	F	COP _{tbiv,measured}
A	-7			COP _{A,declared}
B	2			COP _{B,declared}
C	7			COP _{C,declared}
G	-15			COP _{D,declared}

Table 15: Heating - COP - Complete test (30% units) – Warmer climate

Example 1 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SCOP with
E	Tol	(unit running at TOL)	P	TOL _{declared}
F	Tbiv	-11%	F	COP _{tbiv,measured}
B	2	-12%	F	COP _{B,measured}
C	7			COP _{C,declared} -12%
D	12			COP _{D,declared} -12%

Example 2 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol	(unit running at TOL)	P	TOL _{declared}
F (-7°)	Tbiv	-11%	F	COP _{tbiv,measured}
B	2	-12%	F	COP _{B,measured}
C	7			COP _{C,declared} -12%
D	12			COP _{C,declared} -12%

Example 3 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol	(not running at TOL)	F	Tol _{rerated}
F	Tbiv		P	COP _{tbiv,declared}
B	2		P	COP _{B,declared}
C	7			COP _{C,declared}
D	12			COP _{D,declared}

Table 16: Heating - Complete test (30% units) Other points – Warmer climate

Power consumption	Deviation	Passed / Failed	Rerate SEER with
P _{off}		P	P _{off,declared}
P _{sb}		P	P _{sb,declared}
P _{to}	12%	F	P _{to,measured}
P _{ck}			P _{ck,declared}
Ph Tbiv	-12%	F	Ph _{Tbiv,measured}
P _{designh}			P _{designh,declared} -12%

The rerated P_{designh} is used to calculate the rerated SCOP

Table 17 : Heating - COP – Partial test (70% units) – Warmer Climate

Example 1 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol			TOL _{declared}
F	Tbiv			COP _{tbiv,declared}
B	2	-12%	F	COP _{B,measured}
C	7			COP _{C,declared} -12%
D	12			COP _{D,declared} -12%

Example 2 - COP				
Conditions	T°	Deviation	Passed / Failed	Rerate SEER with
E	Tol			TOL _{declared}
F	Tbiv	-11%	F	COP _{tbiv,measured}
B	2			COP _{B,declared}
C	7			COP _{C,declared}
D	12			COP _{D,declared}

f. Rerating of SEER and SCOP

When second measurement of Tol fails, SCOP of the tested model shall be recalculated with the assumption that all demands beyond Tol are provided by an electric backup heater with a COP of 1. When all points for SCOP/SEER are tested, Eurovent Certita Certification will recalculate the seasonal efficiency using:

- The declared value of part load, if the result is passed
- The measured value, if the result is failed (out of acceptance criteria)

Whenever a measurement at a part-load condition selected by Eurovent Certita Certification shows a deviation on EER or COP larger than the allowed acceptance criteria, the paragraph V.4 shall be applied on all the other part load EER (respectively COP) and then, SEER and SCOP will be recalculated by Eurovent Certita Certification, to be rerated.

Whenever the test on auxiliary power consumption or/and the test on capacity at extreme condition/bivalent condition shows a deviation larger than the allowed acceptance criteria the value of SCOP/SEER should be recalculated.

In case of recalculation of the SEER or SCOP, the annual energy consumption should be recalculated for the tested unit.

In case of recalculation of SEER or SCOP and annual energy consumption for the tested model:

- the deviation on SEER or SCOP shall be applied to all models in the same basic model group (BMG),
- the deviation on annual energy consumption shall be applied to all models in the same basic model group (BMG).
- the deviation of the tested auxiliary power consumptions shall be applied to all models in the same basic model group (BMG).

Table 18: Example of rerating SEER and SCOP

BMG	Model	Items	Declared	Calculated	Deviation	Rerated Value	
1	A	SCOP	3,8	3,18	-16%	3,18	
		Qhe	1750	1805	3%	1805	
	B	SCOP	3,9	-	-	SCOPdeclared x (1 - 0,16)	3,26
		Qhe	1780	-	-	Qheddeclared x (1 + 0,03)	1833
	C	SCOP	3,7	-	-	SCOPdeclared x (1 - 0,16)	3,10
		Qhe	1700	-	-	Qheddeclared x (1 + 0,03)	1751

Model	Items	Declared	Re-Calculated	Deviation	Acceptance criteria	PASSED/FAILED	Rerated Value
A	SCOP	5	4,98	-0,4%	-0,50%	PASSED	5
B	SCOP	5	4,97	-0,6%	-0,50%	FAILED	4,97

For AC2 & AC3 units, all rerating of SEER or SCOP will lead automatically to the rerating of associated seasonal space efficiency η_{sc} or η_{sh} , using the formula mentioned below:

- $\eta_{sc} = \frac{100}{CC} \times SEER - 3\%$ where CC (conversion coefficient, equal to 2.5)
- $\eta_{sh} = \frac{100}{CC} \times SCOP - 3\%$ where CC (conversion coefficient, equal to 2.5)

g. Rerating on acoustic performances

If the result on sound power level exceeds the claimed by the acceptance criteria, but less than the high acceptance criteria (see A.5), only the tested model shall be re-rated in accordance with the test result.

If the result exceeds the claimed value by the acceptance criteria or more, the tested model shall be re-rated in accordance with the test result. In addition, the whole product family of the failed model shall be re-rated to the tested deviation value minus 2 dB(A).

Table 19 : example of rerating when sound power level fails

Family	Declared	Measured	Deviation	Rerated?	Rerated value	
1	50	51	1	Y	LW _{measured}	51
	49	-	-	N	LW _{declared}	49
2	60	65	5	Y	LW _{measured}	65
	58	-	-	Y	LW _{declared} + LW _{deviation} - 2	61

h. Rerating on LRcontmin

If the unit allows to keep stable conditions during the test as defined in EN 14511:2022 and measured LRcontmin doesn't exceed the claimed by the acceptance criteria, then LRcontmin is validated. Then:

- If the deviation of CcpLRcontmin is within the acceptance criteria, declared CcpLRcontmin is validated.
- Otherwise, CcpLRcontmin is rerated according to the measured deviation of Ccp
- But, if the rerated CcpLRcontmin is below 1, the rerated CcpLRcontmin becomes 1 (default value).

If the measure of LRcontmin is failed, LRcontmin becomes 0.4 (default value) and CcpLRcontmin is rerated to 1. The performance values of all other models in the same BMG shall be re-rated by the deviation found with the tested model or the default values when applicable.

III.1.3.8. Possible Upgrading

At the moment of the annual declaration, an upgrading of performances from a same BMG is allowed:

- If the deviation of tested unit (in the BMG) is above inversed acceptance criteria

Or if:

- Units are not already tested and rerated and
- Units of the BMG, if we received the proof (=report) that the tested unit was very underrated

III.1.3.9. Time limitation for the recovery of units

The participant/applicant has the choice to recover the tested units. This information has to be completed in the Technical Data Sheet for each tested model. If the participant/applicant fails to do so, Eurovent Certita Certification will order the laboratory to dispose of the units and invoice the participant/applicant the disposal fee.

The Laboratory shall have the responsibility of re-crating the unit for shipment. Following completion of the tests, the participant/applicant shall arrange for the shipment back to its plant.

For AC1 units the participant/applicant can choose to recover all units at the end of the testing campaign. The Participant/applicant has to recover its units within four weeks after receiving the last test report. For AC2 and AC3 units the Participant/applicant has to recover its units within eight weeks after receiving the test report. In case the participant doesn't communicate its choice regarding the disposal of the unit, Eurovent Certita Certification will order the laboratory to scrap of the units and invoice the participant the disposal fee (the certificate of disposal shall be issued to the participant).

III.1.4. Evaluation and decision

The certification is granted on condition that:

- If the aforementioned checks prove all the ranges compliance with the requirements specified in Appendix A, If not, the procedure for failure treatment shall be applied
- all the other requirements from the present Technical Certification Rules are fulfilled,
- all fees have been settled.
- Penalty tests following an admission procedure need to be validated before the certification is granted.

III.2. Surveillance procedure

III.2.1. Implementation of surveillance operations

III.2.1.1. Selection of units to be tested

For the surveillance procedure, Eurovent Certita Certification shall select units following the same rules than the admission procedure.

III.2.1.2. Surveillance tests

For the surveillance procedure, the surveillance tests follow the same rules than the admission tests.

III.2.1.3. Technical and commercial documentation check

The provisions of the Certification Manual apply.

III.2.1.4. Penalty tests

An additional unit will be selected for the next test campaign each time there is a deviation by more than the high acceptance criteria (see Appendix A) on:

- efficiency and/or capacity;

- sound power level.

III.2.1.5. Penalty audit

The penalty audit should be requested in two cases:

- After two consecutive initial test failure of the unit
- In case the MVR results is 80% of the limit (12% for P_c , P_h and EER and 20% for COP and L_w)

a. Purpose

The purpose of the audit is to verify that the outdoor and indoor units produced by the manufacturer match the units supplied by the participant/applicants to the independent test lab for testing and to check if the declared values match the data published by the manufacturer.

b. General

Manufacturers will declare to Eurovent Certita Certification which factory (ies) are involved in the production of AC units at the same time as manufacturer provide the updated declaration list in the *Declaration factories AC1* and in the *Declaration factories AC2 and AC3* files

Based on that, in case a penalty audit should be applied, Eurovent Certita Certification will determine the site for the audit and advise the audit agency.

Note: for the auditor's safety prior to factory audit, the participant/applicant must provide in advance safety provisions to the auditor i.e. Safety Risk Assessment, Safety Needs including Equipment, etc. If these are not provided or confirmed, then the audit will not take place until they have been provided.

An observer, bounded to the respect of confidentiality (this observer is chosen by Eurovent Certita Certification by standards and agreements which he has signed), can take part to the audit. The holder is systematically informed by Eurovent Certita Certification of the presence of this observer prior to the audit.

The audits shall be ordered by Eurovent Certita Certification. The audit costs shall be paid by the manufacturer to Eurovent Certita Certification.

In the event of two consecutive initial test failures for more than one unit in the same testing campaign, only one factory will be verified per year per manufacturer.

Even if a factory produces just a part of declared units, a global checking of data can be done, when technically possible (example: link between manufacturer catalogue and Eurovent declaration).

The factory must have resources required to conduct the audit in English.

The duration of the site audit is one day (including audit preparation, the audit itself, the report writing and the management of the corrective actions, if relevant). This duration can be adjusted in the case of carrying out a joint audit with other certifications.

If audits are not conducted within the time limitations specified in the notification received from Eurovent Certita Certification, it is considered as non-application of procedures.

The auditor will check the complaint registers concerning the certified products

c. Verification of physical data

The following data can be checked :

- model number from nameplate;
- check exterior dimensions;
- check motor nominal capacity;
- check fan type (brand and model), material, power input, number of blades;
- Weight
- Dimensions of the casing (L x l x h)
- Airflow & Available pressure of indoor coil
- Number of rows and lines of the indoor heat exchanger
- Refrigerant type and charge

d. Audit report and Audit conclusions

Based on the findings the agency will report compliance or non-compliance and any evidence that may affect conclusions of the manufacturer's level of responsibility. The independent agency shall send an Audit Report to Eurovent Certita Certification. After checking the audit report, Eurovent Certita Certification shall communicate audit conclusions and report to the participant/applicant.

In case of non-conformity, the manufacturer shall send within twenty working days after the transmission of the Audit Report any mitigating circumstances to Eurovent Certita Certification. Then, the manufacturer shall receive the Audit Conclusions including whether or not the non-conformity is the manufacturer's responsibility.

Definitions:

C = Critical non-conformity: That significantly affects the participation to the Certification Programme within Eurovent Certita Certification. Or that, while not jeopardizing a substantial participation in the Certification Programme, gives evidence of non-conformity that must be solved to ensure that the products comply with the stated requirements

NC= Non critical non-conformity : Situation of a formal misalignment with little or no impact on Certification Programme.

Example of critical non-conformities

- Unrealistic declaration: The Manufacturer has no evidence of invoices (or other formal documents) from the previous year for the checked listed model. This non-conformity is not relevant for new products declared during the year of the audit.
- Discrepancies in BOM: One or more component(s) described in the production BOM don't match with declared Data of Record for a specific listed model checked.

Example of Non critical non-conformities:

- Lack of documents: The Auditor requires clarification about one component described in the production BOM that the manufacturer doesn't have available to compare with declared Data of Record for a specific listed model checked.
- Lack of Eurovent Certita Certification evidence: The label used in Technical or Commercial documentation is not according to Certification Manual.
- If not solved from previous audit, a noncritical non-conformity becomes a critical non-conformity.

e. Failure treatment

In case of non-conformity, Eurovent Certita Certification shall initiate the appropriate failure treatment procedures. The outcome of the failure treatment procedures may be that the participant/applicant is suspended temporarily from certification

The Audit failure treatment consists of the following:

- In case of non-critical non-conformity or critical non-conformity, the manufacturer shall send Eurovent Certita Certification the corrected documentation or figures within 1 month.
- Moreover, the participant/applicant is notified by Eurovent Certita Certification about its loss of points according to the dedicated chapter of Certification Manual.
- In case of violation of rules, the participant/applicant is suspended temporarily

III.2.2. Evaluation and decision

Every year, Eurovent Certita Certification checks whether the performance of the products still meet the requirements. Surveillance tests in independent laboratory shall be conducted annually in compliance with the Certification Schedule (see Appendix G).

For the surveillance procedure the certification is renewed at the date specified in the Certification Schedules (see Appendix G) on condition that:

- The previous test campaign (N-1) has been successfully completed
- The product delivery together with the technical datasheet, the starting procedure and the payment have been completed

The company receives a renewed certificate and the display of data is maintained on the Eurovent Certified Performance (ECP) website. If not, failure treatment shall be applied.

III.3. Declaration of modifications

The provisions of the Certification Manual apply.

III.3.1. Changes concerning the participant/applicant

The provisions of the Certification Manual apply.

III.3.2. Additional admission for a new model and/or new range

The provisions of the Certification Manual apply.

III.3.3. Changes concerning the certified product

The applicant/participant shall inform Eurovent Certita Certification of any modification of the product portfolio by updating the declaration file . Non-compliance of the applicant/participant/applicant is considered as non-application of procedures

Eurovent Certita Certification decides whether the modification is significant for the certified performance data or not. In the case of significant modifications Eurovent Certita Certification is entitled to request adequate tests to check the influence on performance data. This test shall not be considered as a repetition one.

III.3.4. Temporary or permanent cessation of production of a certified product

The provisions of the Certification Manual apply.

III.4. Suspension/cessation conditions

The provisions of the Certification Manual apply.

Appendix A. TECHNICAL APPENDIXES

A.1. Purpose

The purpose of this document is to establish definitions and specifications for the testing and rating of (relevant products) for the Air conditioner Programme.

A.2. Testing requirements

Table 5 : Piping length

Type of unit	Total Cooling capacity [kW]	Piping length or fixed piping if 7.5m length is not possible for the set-up [m]
Split/Multisplit	≤12	[5;7,5]
Split	> 12	[7,5] or [11]
Multisplit	> 12	[7,5] or [11] or [15]

A.3. Rating requirements

Rating requirements are in accordance with EN 14511:2022, EN14825:2022, Commission Regulation (EU) No. 206/2012 and Commission Regulation (EU) No. 2016/2281.

The tests shall be carried out at 230 V for one phase units and 400 V for three phase units, with the rated frequency of 50 Hz. For one phase units: the MPS shall be declared as 230-1-50 and for three phase units: the MPS shall be declared as 400-3-50.

For AC units with a total cooling capacity ≤12kW (AC1), power input to indoor units and linked corrections to both power input and capacity according to clause 4.1 in EN 14511-3:2022 apply. For mutlisplit AC units above 12kW (AC2 & AC3), according to the clause H.4.1 of the EN 14511-3:2022 the corrections of the total cooling capacity or heating capacity due to the power input of fans for indoor units with duct connection shall not be carried out.

1) Reference temperatures and hours

Reference design temperatures and operational hours used in the calculation of SEER and SCOP and the annual power consumption must be in accordance with Tables below.

Table 6 : Reference design temperatures

	Design Temperature [°C]		Bivalent temperature [°C]	Operating limit Temperature [°C]
	Outdoor	Indoor		
Cooling	35 (24)	27 (19)	n.a	n.a
Heating / Average	-10(-11)	20 (15 max)	+2 or lower	-7 or lower
Heating / Warmer	+2(1)	20 (15 max)	+7 or lower	+2 or lower
Heating / Colder	-22	20 (15 max)	-7 or lower	-15 or lower

^a For $T_{bivalent}$ and TOL higher or equal to -10°C the wet bulb temperature equals the dry bulb temperature minus 1°C. For $T_{bivalent}$ and TOL below -10°C, wet bulb temperature is not defined.

Table 22 : Operational hours per type of appliance per functional mode for AC1

	Mode	Season	On mode [h]	Thermostat off mode [h]	Standby mode [h]	Off mode [h]	Crankcase heater mode [h]
			Cooling H_{CE} heating H_{HE}	H_{TO}	H_{SB}	H_{OFF}	H_{CK}
Cooling only	Cooling	-	350	221	2142	5088	7760
Reversible	Cooling	-	350	221	2142	0	2672
	Heating	Average	1400	179	0	0	179
		Warmer	1400	755	0	0	755
		Colder	2100	131	0	0	131
Heating only	Heating	Average	1400	179	0	3672	3851
		Warmer	1400	755	0	4345	4476
		Colder	2100	131	0	2189	2944

Table 7 : Operational hours per type of appliance per functional mode for water-cooled AC1, AC2 & AC3

		Operational hours				
		On-mode	Thermostat Off mode	Standby mode	Off mode	Crankcase heater mode
		H_{CE} or H_{HE}	H_{TO}	H_{SB}	H_{OFF}	H_{CK}
Cooling (to calculate SEER & η_{sc})		600	659	1377	0	2036
Heating if reversible unit (to calculate SCOP & η_{sh})	Average	1400	179	0	0	179
	Colder	2100	131	0	0	131
	Warmer	1400	755	0	0	755

2) Standard rating conditions

The standard rating conditions in Table below shall be used.

Table 8 : Operating conditions for standard rating

	INDOOR UNIT		OUTDOOR UNIT			
	Air entering °C		Air entering °C		Water °C	
	Dry bulb	Wet bulb	Dry bulb	Wet bulb	In	Out
Comfort Air Conditioner - Cooling mode	27	19	35	24 ^a	30	35
Comfort Air Conditioner - Heating mode	20	15 max	7	6	10	7

^a The wet bulb temperature condition is not required when testing units which do not evaporate condensate.

3) Part-Load rating conditions

The Part load rating conditions in Table below shall be used

Table 9 : Part load conditions for reference SEER and reference SEER_{on} calculation of air-to-air units

	Targeted Part-load Ratio [%]	Outdoor heat exchanger	Indoor heat exchanger
		Outdoor air dry bulb temperature [°C]	Indoor air dry bulb (wet bulb) temperatures [°C]
A*	100	35	27(19)
B	74	30	27(19)
C	47	25	27(19)
D	21	20	27(19)

* Part-load condition A for cooling mode is coincident with the standard rating condition defined in EN 14511-2:2022

Table 10 : Part-load conditions for reference SCOP reference SCOP_{on} and reference SCOP_{net} calculation of air-to-air units

	Targeted Part load ratio [%]				Outdoor heat exchanger	Indoor heat exchanger
		Colder Climate	Average climate	Warmer climate	Air dry (wet) bulb T [°C]	Inlet air dry bulb T [°C]
G ^b	$(-15-16)/(T_{designh} - 16)$	82			-15	20
A ^c	$(-7-16)/(T_{designh} - 16)$	61	88		-7(-8)	20
B	$(+2-16)/(T_{designh} - 16)$	37	54	100	2(1)	20
C	$(+7-16)/(T_{designh} - 16)$	24	35	64	7(6)	20
D	$(+12-16)/(T_{designh} - 16)$	11	15	29	12(11)	20
E ^d	$(TOL-16)/(T_{designh} - 16)$				TOL ^a	20
F	$(T_{bivalent}-16)/(T_{designh} - 16)$				Tbivalent ^a	20

^a For T_{bivalent} and TOL higher or equal to -10°C the wet bulb temperature equals the dry bulb temperature minus 1°C. For T_{bivalent} and TOL below -10°C, the wet bulb temperature is not defined.

^b Applicable only for rating at colder climate, if TOL < -20°C.

^c Not requested for rating at warmer climate.

^d If TOL < T_{designh}, then the test is performed with an outdoor air dry bulb temperature of T_{designh} (T_{designh} = -10°C for the avg climate)

4) TOL running test method (For AC1)

Run up test at TOL is done without using any specific start up procedure or attached hardware to the sample. The unit is run as the end user would do, in order to confirm that no specific software routine other than normal usage operation is used.

5) LRcontmin test method

Two tests have to be performed:

- A heating (respectively cooling) capacity test at this load ratio to verify the continuous operation of the unit (no cycling) and record the heating capacity and the COP (respectively EER) at LRcontmin.
- A heating (respectively cooling) capacity test at the standard rating conditions and record the capacity and the COP (respectively EER) in these standard rating conditions.

CcpLRcontmin is then calculated and validated, as follows:

In cooling:

$$CcpLRcontminc = \frac{\text{EER at LRcontmin}}{\text{EER at standard rating conditions}}$$

In heating:

$$CcpLRcontminh = \frac{\text{COP at LRcontmin}}{\text{COP at standard rating conditions}}$$

6) LRcontmin test method for heating mode (Alternative method)

The only case in which “Part Load C” values (Ph and COP) could be used in the calculation of LRcontmin is when the 2 following requirements are met:

- Unit has to be declared with minimum compressor frequency for Part Load C.
- Capacity declared at such Part Load C (which corresponds to minimum compressor frequency) complies with standard acceptance criteria (10%).

Otherwise, the test described at standard rating conditions is required.

The manufacturer shall inform Eurovent Certita Certification which method is used regarding this declaration once the unit is selected for testing.

A.4. Procedure for sound testing

The present document describes procedures for sound testing of Air Conditioners. Specifications concerning temperature conditions and installation of units have been defined. The document is used by Independent Laboratories under contract with Eurovent Certita Certification for testing for certification.

From the sound testing standpoint, four types of Air Conditioners have been defined:

- Split systems
- Multisplit systems
- Packaged air-cooled air conditioners
- Packaged water-cooled air conditioners

All tests are made in cooling mode for air conditioners below 12kW, in the same conditions as for the measurement of the EER in standard rating conditions (fan speeds, compressor speeds, etc). For AC2 and AC3, the tests shall be carried out in cooling mode for cooling only units and in cooling or heating mode for reversible units at standard rating conditions.

Tests are normally performed in a reverberation room (EN 12102-1:2022 and EN ISO 3741:2012) except for very large units. For AC1 units, test shall be performed using the precision method in reverberant room (EN 12012-1:2017 + EN ISO 3741:2012). For AC2 and AC3 units, test shall be performed using the precision method in reverberant room (EN 12012-1:2017 + EN ISO 9614-1).

For the purpose of this document, the minimum working time under the nominal working conditions as indicated in Table 27 and with the permissible deviations given in Table 28 is 20 minutes. Same deviations must be kept during testing.

Table 27 : Operating conditions for standard rating

	INDOOR UNIT or SIDE		OUTDOOR UNIT or SIDE			
	Air entering		Air entering		Water °C	
	Dry bulb °C	H.R.%	Dry bulb °C	H.R.%	In	Out
Comfort Air Conditioners	27	47	35	40*	30	35
Comfort Air Conditioners II (Packaged water-cooled units)	27	47	-	-	30	35
Comfort Air Conditioners III (Packaged ducted units)	30	47	-	-	30	35

* The relative humidity condition is not required when testing units which do not evaporate condensate.

To determine the available pressure at the unit outlet for ducted units, it is possible to determine the External Static Pressure (ESP) as the pressure difference between the reverberation room (if available) and the air inlet of the unit.

For units to be connected with ducts, it is recommended to use straight ducts, without any bend. The length of the ducts will depend on the dimensions of the unit but should be as short as possible.

If bends cannot be avoided, only one soft right angle bend without guide vanes is allowed in each duct.

The ducts shall not radiate noise liable to disturb the measurements. In some cases (e.g. discharge noise), the use of standard metal duct or wooden duct with a surface density over 10 kg/m² is enough to avoid parasite radiation.

But, in case of measurements of radiated noise of the casing for a ducted unit (e.g. in reverberation room), the radiation of duct should be as low as possible to avoid perturbation of the sound pressure under measurement. In that case, the ducts may be made of materials ensuring a good insulation against airborne transmission and having an acoustically reflecting outer layer.

Table 11 : Permissible deviations from set values for individual measured values

Liquid	inlet temperature	± 1.5 K
	ΔT	± 1 K
	volume flow	10%
Air	inlet temperature (dry bulb)	± 2 K
	inlet temperature (wet bulb)	-
	HR	± 10 %
	rpm of fan	± 10 %
Airflow	Static pressure difference	± 5 Pa
	Airflow	± 10 %
Voltage		± 4 %

1) Split system air conditioners

Four combinations may exist:

	1	2	3	4
Outdoor	Non Ducted	Non Ducted	Ducted	Ducted
Indoor	Non Ducted	Ducted	Non Ducted	Ducted

In all cases, except for the packaged water-cooled non ducted units, two sound power levels have to be measured, one for indoor and one for outdoor side.

When there is no ducting the measurement is performed with the corresponding unit in the reverberation room. When there is ducting, the unit is installed outside of the reverberation room and a duct is installed between its outlet and the reverberation room. A pressure difference corresponding to the claimed available pressure is adjusted with a tolerance of 10% or 5 Pa, whichever is higher.

When tested for sound, split system Air Conditioners should operate at temperature conditions as close as possible to standard values for capacity test. However, the influence of air temperature on sound power is much lower than its influence on cooling capacity. Therefore, a larger tolerance on conditions is acceptable in most cases.

It should be noted that when testing an indoor unit, the inlet air temperature should be maintained within the given limits but at the same time the inlet air temperature of the outdoor unit should be such that the unit as a whole operates normally. The same principle is valid for outdoor units testing.

Floor-mounted units are installed on the floor following normal installation instructions provided by the Participant/applicant.

Cassettes are installed in the normal operating condition (not upside down) on a support 1.8 m above the floor.

Louvers are kept at the opening position for the maximum air flow.

For specific unit working conditions please refer to Table 27 and Table 28.

For outdoor units with condensing control system or Inverter units, which can change fan speed and or compressor working frequency, care should taken to avoid increasing the measurement uncertainty.

2) Multisplit system air conditioners

Four combinations may exist:

	1	2	3	4
Outdoor	Non Ducted	Non Ducted	Ducted	Ducted
Indoor	Non Ducted	Ducted	Non Ducted	Ducted

In all cases, except for the packaged water-cooled non ducted units, at least two sound power levels have to be measured: at least one for indoor and one for outdoor side.

For multisplit system air conditioners with more than two indoor units, the acoustic tests have to be performed as follow:

When testing the outdoor unit for sound, the system has to be installed completely (Outdoor unit + Indoor units) and the test is executed in heating or cooling mode

When testing the indoor unit(s) for sound, the test is executed with one indoor unit only, if the indoor units are the same, or with two indoor units in case of different models.

When there is no ducting the measurement is performed with the corresponding unit in the reverberation room. When there is ducting, the unit is installed outside of the reverberation room and a duct is installed between its outlet and the reverberation room. A pressure difference corresponding to the claimed available pressure is adjusted with a tolerance of 10% or 5 Pa, whichever is higher.

When tested for sound, multisplit system Air Conditioners should operate at temperature conditions as close as possible to standard values for capacity test. However, the influence of air temperature on sound power is much lower than its influence on cooling capacity. Therefore, a larger tolerance on conditions is acceptable in most cases.

It should be noted that when testing an indoor unit, the inlet air temperature should be maintained within the given limits but at the same time the inlet air temperature of the outdoor unit should be such that the unit as a whole operates normally. The same principle is valid for outdoor units testing.

Floor-mounted units are installed on the floor following normal installation instructions provided by the Participant/applicant.

Cassettes are installed in the normal operating condition (not upside down) on a support 1.8 m above the floor.

Louvers are kept at the opening position for the maximum air flow.

For specific unit working conditions please refer to Table 27 and Table 28 .

For outdoor units with condensing control system or Inverter units, which can change fan speed and or compressor working frequency, care should taken to avoid increasing the measurement uncertainty.

3) Packaged air-cooled air conditioners

Two cases exist:

outdoor non-ducted, indoor ducted;

both outdoor and indoor ducted.

In both cases the temperature around the unit (i.e. inlet temperature for indoor and outdoor sides) is maintained at $30 \pm 5^{\circ}\text{C}$, according to Table 1 (Packaged ducted units).

4) Packaged water-cooled air conditioners

Two cases exist:

Indoor ducted;

Indoor non-ducted.

In both cases the inlet air temperature is maintained at $27 \pm 3^{\circ}\text{C}$ and the relative humidity at $47 \pm 5\%$. For non-ducted units only, only the sound power level radiated by the unit is measured.

A.5. Acceptance criteria

1) Air-cooled heat pumps units rated up or equal to 12 kW (AC1)

When tested the characteristics obtained shall not differ from the values claimed in the Participant/applicant literature by more than the acceptance criteria of Table below:

Table 12 : Acceptance criteria for air-cooled AC1

	Acceptance criteria	High deviation ⁵
Outdoor Capacity (cooling or heating) at standard rating conditions	< -5%	< -12%
Outdoor Efficiency EER, COP at standard rating conditions and tested in part load	Capacity above or equal to 2 kW < -8%	<-15%
	Capacity below 2 kW <-10%	
Sound		
A-weighted sound power level	> +0 dB(A)	> +3 dB(A)
Auxiliaries		
P_{off}	> +10%	-
P_{sb}	> +10%	-
P_{to}	> +10%	-
P_{ck}	> +10%	-

LRcontmin +/- 5% (point)

CcpLRcontmin < - 5% (point)

2) AC1 Water-cooled heat-pump unit, AC2 and AC3

When tested the characteristics obtained shall not differ from the values claimed in the Participant/applicant literature by more than the acceptance criteria of Table beloww :

⁵ Leading to a penalty tests, see § dedicated to failure treatment, penalty tests

Table 13 : Acceptance criteria for AC1 water-cooled units, AC2 and AC3

Acceptance criteria		High deviation ⁵
Standard Point (EN 14511:2022)		
Outdoor Capacity (cooling or heating)	< -5%	< -12%
Outdoor Efficiency EER, COP	< -8%	<-15%
SEER		
EER on part load point	< -(4+6/%Part Load)	< -(4+8/%Part Load)
Part Load B	<-12%	<-15%
Part Load C	<-17%	<-21%
Part Load D	<-33%	<-42%
SEER if all points have been tested	< -8%	< -12%
SEER	< -0,5%	
SCOP		
COP on part load point	< -(4+6/%Part Load)	< -(4+8/%Part Load)
Part Load A / T_{biv}	<-11%	<-13%
Part Load B	<-15%	<-19%
Part Load C	<-21%	<-27%
Part Load D	<-44%	<-57%
P bivalent	<-11%	<-13%
SCOP if all points have been tested	< -8%	< -12%
SCOP	< -0,5%	
Sound		
A-weighted sound power level	> +0 dB(A)	> +3 dB(A)
Auxiliaries		
P_{off}	> +10%	-
P_{sb}	> +10%	-
P_{to}	> +10%	-
P_{ck}	> +10%	-

LRcontmin	+/- 5% (point)
CcpLRcontmin	< - 5% (point)

Appendix B. TECHNICAL APPENDIXES

All characteristics and performances shall be expressed in SI units. Maximum of 3 significant digits shall be used for capacity, EER, COP, SEER, SCOP, power consumption and water pressure drop and 2 significant figures for sound power. Submittal of data shall be made by filling in the forms provided by Eurovent Certita Certification as .xls or .xlsx files

B.1. Form : Declaration file AC1

The form Declaration file AC1 to be filled in shall be sent by Eurovent Certita Certification to:

- Applicants who have signed the license agreement
- Participant/applicants, on an annual basis before the deadline specified in the Certification schedule

A template is available for information and upon request.

B.2. Form : Declaration file AC2 and AC3

The form Declaration file AC2 and AC3 to be filled in shall be sent by Eurovent Certita Certification to:

- Applicants who have signed the license agreement
- Participant/applicants, on an annual basis before the deadline specified in the Certification schedule

A template is available for information and upon request.

B.3. Form : Declaration factories AC1

The form Declaration factories AC1 to be filled in shall be sent by Eurovent Certita Certification to:

- Applicants who have signed the license agreement
- Participant/applicants, on an annual basis before the deadline specified in the Certification schedule

A template is available for information and upon request.

B.4. Form : Declaration factories AC2 and AC3

The form Declaration factories AC2 and AC3 to be filled in shall be sent by Eurovent Certita Certification to:

- Applicants who have signed the license agreement
- Participant/applicants, on an annual basis before the deadline specified in the Certification schedule

A template is available for information and upon request.

B.5. Form : Technical Data Sheet (TDS)

The form Technical Data Sheet (TDS) to be filled in shall be sent by Eurovent Certita Certification to applicants/participant after the tests selections are completed

It is mandatory to provide the Technical Data Sheet form before the deadline in the calendar (see Appendix G)

A template is available for information and upon request.

B.6. Form : Starting Procedure (SP)

The form Starting procedure is sent directly by the participant/applicant to Eurovent Certita Certification before the laboratory can test the unit.

It is mandatory to provide the starting procedure form before the deadline in the calendar (see Appendix G)

B.7. Form : Reporting of test results file

REPORTING OF TEST RESULT											
GENERIC		Test key: Created on: Last update on: Status:									
MANUFACTURER		Participant key: Participant name: Model key: Model name: Product type: Serial number:									
MODEL		Programme - Sub-programmes: Air Conditioners/Comfort Air Conditioners Date of reception of the unit: xxx/xx/xx Date of reception of test report: xxx/xx/xx Unit tested on:									
TEST											
RESULT DETAILS											
		Measurement			MFV		High failure				
APPLICATION	General	Measured	Declared	Deviation	Limit	Result	Limit	Result	Limit	Result	
AC_ClassCOP	-										
AC_ClassEER	-										
APPLICATION	Thermal	Measured	Declared	Deviation	Limit	Result	Limit	Result	Limit	Result	
Pc	kW										
EER	-										
Ph	kW										
COP	-										
Pec	kW										
Pen	kW										
APPLICATION	Acoustic	Measured	Declared	Deviation	Limit	Result	Limit	Result	Limit	Result	
LwOenv	dB(A)										
Lw1 env	dB(A)										
Lw2 env	dB(A)										
TEST CONCLUSION											
					Test		MFV		High failure		
							x/x		x penalty test(s)		

B.8. Form : Proposal of rerate file

PROPOSAL OF RERATE											
GENERIC		Rerate key: Created on: xxx/xx/xx Last update on: Status:									
MANUFACTURER		Participant key: Participant name: F									
TEST		Test key: Unit tested on: xxx/xx/xx									
APPLICATION Acoustic											
DECLARED											
Product key	Product name	Type of product	Range name	BMG	Perf 1.1						
RERATED											

Appendix C. CALCULATION METHOD AND IMPLEMENTATION OF MVF

C.1. General

Mean Value of Failure (MVF) is equal, for each manufacturer and for each considered characteristic, to the ratio between the total number of measurements above the “**High deviation limit**” (see table below) and the total performed measurements in the considered years.

$$MHFV = \frac{\sum \text{Number of measurements failed with high deviation}}{\sum \text{Number of measurements performed}}$$

Mean High Failure Value Number of considered years Number of considered years

When there is a second test on a unit, then the first measurements are not taken into account.

A manufacturer is suspended from the Eurovent Certified Performance Programme for one campaign if, for at least one considered characteristic, the mean value of MVF is higher than the limit z.

Current Failure treatment (re-rating and additional tests) still applies above the “Eurovent AC acceptance criteria” (see Appendix A).

Participant/applicants		Participant/applicants already certified	New participant/applicants
Test campaigns to be considered		3 last test campaigns	Admission test campaign + first surveillance test campaign
Time of application		starting from 2011	after first surveillance test campaign
Charac- teristic	Eurovent AC acceptance criteria	High deviation limit	Limits for being suspended MVF > ...
Pc			15%
Ph			15%
EER	See Appendix A		15%
COP			> 25 %
Lw			> 25 %

C.2. Implementation and newcomers

Data of new participant/applicants will be first taken into account after two test campaigns (including admission tests).

C.3. Notification of being suspended

A participant/applicant who is going to be suspended will receive a notification from Eurovent Certita Certification, with a possible additional selected unit to be tested. The purpose of this additional test is to give the participant/applicant the opportunity to comply with the limits. The response to Eurovent Certita Certification with confirmation of request for additional testing has to be done within 30 days after this notification, and the unit has to be delivered within 45 days after this notification.

Appendix D. ECO-DESIGN AND ENERGY LABELLING FOR AC1 PROGRAMME

Commission Regulation (EU) No 206/2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for air conditioners and comfort fans gives requirements for all air conditioners with the cooling capacity under 12 kW introduced on the European market after 1 January 2013. The Directive defines maximum sound power levels and energy efficiency as given in the following tables,

Table 5
Requirements for maximum sound power level

Rated capacity ≤ 6 kW		6 < Rated capacity ≤ 12 kW	
Indoor sound power level in dB(A)	Outdoor sound power level in dB(A)	Indoor sound power level in dB(A)	Outdoor sound power level in dB(A)
60	65	65	70

- (c) From 1 January 2014, air conditioners shall correspond to requirements as indicated in the table below, calculated in accordance with Annex II. The requirements on energy efficiency for air conditioners, excluding single and double duct air conditioners, shall relate to the reference design conditions specified in Annex II, Table 3 using the 'Average' heating season where applicable. The requirements on energy efficiency for single and double duct air conditioners shall relate to the standard rating conditions specified in Annex II, Table 2.

Table 6
Requirements for minimum energy efficiency

	Air conditioners, except double and single duct air conditioners		Double duct air conditioners		Single duct air conditioners	
	SEER	SCOP (heating season: Average)	EER _{rated}	COP _{rated}	EER _{rated}	COP _{rated}
If GWP of refrigerant > 150 for < 6 kW	4,60	3,80	2,60	2,60	2,60	2,04
If GWP of refrigerant ≤ 150 for < 6 kW	4,14	3,42	2,34	2,34	2,34	1,84
If GWP of refrigerant > 150 for 6-12 kW	4,30	3,80	2,60	2,60	2,60	2,04
If GWP of refrigerant ≤ 150 for 6-12 kW	3,87	3,42	2,34	2,34	2,34	1,84

- (d) From 1 January 2014, single duct and double duct air conditioners and comfort fans shall correspond to requirements as indicated in Table 7 below, calculated in accordance with Annex II.

Commission Regulation (EU) No 626/2011 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of air conditioners makes mandatory energy labelling of all air conditioners with the cooling capacity under 12 kW introduced on the European market after the 1st January 2013. The Directive defines for each function the energy class going from A+++ (more efficient) to G (less efficient). The classification is given in the following Table below.

Table 14 : Energy class for AC units

Energy Efficiency Class	SEER	SCOP
A+++	SEER \geq 8.50	SCOP \geq 5.10
A++	6.10 \leq SEER < 8.50	4.60 \leq SCOP < 5.10
A+	5.60 \leq SEER < 6.10	4.00 \leq SCOP < 4.60
A	5.10 \leq SEER < 5.60	3.40 \leq SCOP < 4.00
B	4.60 \leq SEER < 5.10	3.10 \leq SCOP < 3.40
C	4.10 \leq SEER < 4.60	2.80 \leq SCOP < 3.10
D	3.60 \leq SEER < 4.10	2.50 \leq SCOP < 2.80
E	3.10 \leq SEER < 3.60	2.20 \leq SCOP < 2.50
F	2.60 \leq SEER < 3.10	1.90 \leq SCOP < 2.20
G	SEER < 2.60	SCOP < 1.90

Appendix E. ECO-DESIGN FOR AC2 & AC3 PROGRAMMES

Commission Regulation (EU) 2016/2281 of 30 November 2016 implementing Directive 2009/125/EC of the European Parliament and of the Council establishing a framework for the setting of ecodesign requirements for energy-related products, with regard to ecodesign requirements for air heating products, cooling products, high temperature process chillers and fan coil units.

Minimum requirements (η_{sc}) for cooling mode from the 1st January 2021:

Air-to-air air conditioners, driven by an electric motor, except rooftop air conditioners	189
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Minimum requirements (η_{sh}) for heating mode from the 1st January 2021:

Air-to-air air heat pumps, driven by an electric motor, except rooftop heat pumps	137
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Appendix F. CERTIFICAT D'ECONOMIE D'ENERGIE (CEE) FOR AIR/AIR HEAT PUMPS

The general directory of energy and climate (ADEME) and technical association of energy and environment in France elaborated the Certificat d'Economie d'Energie (CEE) for air-to-air heat pumps below or equal to 12 kW (AC1 units) sold on the French market.

The CEE is calculated based on the official French document BAR-TH-129.

To obtain this certificate, the unit should have a seasonal coefficient of performances higher or equal 3,9. ($SCOP \geq 3,9$).

To justify the performance of the unit, a certificate from an organization accredited by the French committee of accreditation (COFRAC) could be provided.

The French government provide energy bonus for CEE holders.

The units eligible to are to be indicated on the ECC website.

Appendix G. CAMPAIGN SCHEDULE

For each surveillance test campaign (year n), the following schedule shall be applied:

ECC asks for up-date of product list	15/11/n-1
Participant/applicant confirms up-date of products list	15/12/n-1
ECC sends selection list for test	15/01/n
The Participant/applicant confirms selection list	30/01/n
Delivery + TDS + Starting procedure + order/payment from Participant/applicant are completed for units with cooling capacity lower or equal to 5 kW	15/04/n
Delivery + TDS + Starting procedure + order/payment from Participant/applicant are completed for units with cooling capacity higher than 5 kW	30/04/n
Auditors undertakes manufacturing facility visits (penalty audits)	30/05/n+1
Diploma for test campaign n are valid until	30/07/n+1
The Laboratory carries out all first tests	30/10/n or 60 days after test is ordered
The Participant/applicant can ask for a second test up to	One month from reception of the test results
Delivery + TDS + Starting procedure + order/payment from Participant/applicant are completed for second test(s)	One month after the request for a second test
The Laboratory carries out all second tests	28/02/n+1



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