



STATE NEWS

REPUBLIC OF INDONESIA

No.1847, 2017

KEMEN-ESDM. SKEM. Inclusion of Energy Saving Label for Air
Conditioning Devices.

REGULATION OF THE MINISTER OF ENERGY AND MINERAL RESOURCES

REPUBLIC OF INDONESIA

NUMBER 57 OF 2017

ABOUT

IMPLEMENTATION OF MINIMUM ENERGY PERFORMANCE STANDARDS
AND INCLUSION OF ENERGY SAVING LABEL
FOR AIR CONDITIONING DEVICES

BY THE GRACE OF GOD ALMIGHTY

MINISTER OF ENERGY AND MINERAL RESOURCES OF THE REPUBLIC OF INDONESIA,

Considering: a. that in order to simplify licensing, it is necessary to regulate
re-implementation of minimum energy performance standards and
inclusion of energy saving labels for devices
air conditioning as regulated in the Regulations
Minister of Energy and Mineral Resources Number 07
2015 on the Implementation of Energy Performance Standards
Minimum and Inclusion of Energy Saving Labels
for Air Conditioning Devices;

b. that based on the considerations as follows
referred to in letter a, it is necessary to establish regulations
Minister of Energy and Mineral Resources on
Implementation of Minimum Energy Performance Standards and
Inclusion of Energy Saving Labels for Appliances
Air Conditioner;

Considering: 1. Law Number 8 of 1999 concerning
Consumer Protection (State Gazette of the Republic of

- Indonesia 1999 Number 42, Additional Sheet
Republic of Indonesia Number 3821);
2. Law Number 30 of 2007 concerning Energy
(State Gazette of the Republic of Indonesia 2007)
Number 96, Supplement to the State Gazette of the Republic of Indonesia
Indonesia Number 4746);
3. Law Number 30 of 2009 concerning
Electricity (State Gazette of the Republic of Indonesia)
2009 Number 133, Supplement to the State Gazette
Republic of Indonesia Number 5052);
4. Law Number 20 of 2014 concerning
Standardization and Conformity Assessment (Sheet)
Republic of Indonesia Law 2014 Number 216,
Supplement to the State Gazette of the Republic of Indonesia Number
5584);
5. Government Regulation Number 102 of 2000 concerning
National Standardization (State Gazette of the Republic of
Indonesia 2000 Number 199, Additional Sheet
Republic of Indonesia Number 4020);
6. Government Regulation Number 70 of 2009 concerning
Energy Conservation (State Gazette of the Republic of Indonesia)
2009 Number 171, Supplement to the State Gazette
Republic of Indonesia Number 5083);
7. Government Regulation Number 14 of 2012 concerning
Electricity Supply Business Activities (Sheet)
Republic of Indonesia Law 2012 Number 28,
Supplement to the State Gazette of the Republic of Indonesia Number
5281) as amended by the Regulations
Government Regulation Number 23 of 2014 concerning Amendments
on Government Regulation Number 14 of 2012
regarding Electricity Supply Business Activities
(State Gazette of the Republic of Indonesia 2014)
Number 75, Supplement to the State Gazette of the Republic of Indonesia
Indonesia Number 5530);
8. Presidential Regulation Number 68 of 2015 concerning
Ministry of Energy and Mineral Resources (Gazette)
Republic of Indonesia 2015 Number 132)

as amended by Presidential Regulation
Number 105 of 2016 concerning Amendments to
Presidential Regulation Number 68 of 2015 concerning
Ministry of Energy and Mineral Resources (Gazette)
Republic of Indonesia Law 2016 Number 289);

9. Regulation of the Minister of Trade Number 24/M-DAG/PER/4/2016 concerning Standardization in the Field Trade (State Gazette of the Republic of Indonesia Year 2016 Number 565);
10. Regulation of the Minister of Energy and Mineral Resources Number 13 of 2016 concerning Organization and Work Procedures Ministry of Energy and Mineral Resources (News) Republic of Indonesia 2016 Number 782);

DECIDE:

To stipulate: REGULATION OF THE MINISTER OF ENERGY AND RESOURCES
MINERAL ON THE IMPLEMENTATION OF PERFORMANCE STANDARDS
MINIMUM ENERGY AND LABELING
ENERGY SAVING FOR AIR CONDITIONING DEVICES.

PIG

GENERAL REQUIREMENTS

article 1

In this Ministerial Regulation, the following terms are defined as:

1. The next Minimum Energy Performance Standards
abbreviated as SKEM is a specification that contains
a number of minimum energy performance requirements under certain
conditions which are effectively intended to limit the maximum amount
of energy consumption of
permitted energy utilization products.
2. The Energy Saving Label is a label in accordance with
Indonesian National Standard 04-6958-2003 concerning
Utilizing Electricity for Home Needs
Stairs and the Like - Energy Saving Sign Labels
listed on the use of electricity for household and similar purposes, which

stating that the product has met the requirements
certain energy savings.

3. Air Conditioning Devices are assemblies or assemblies-
closed assembly designed as equipment for
provide comfortable air into the room, space,
or closed zone.
4. Energy Efficiency Ratio (*EER*) which
hereinafter referred to as EER is the comparison between
air cooling capacity in *British* units
Thermal Unit per hour (BTU/hour) with electrical power
consumed in watts.
5. The Energy Saving Certificate is a written guarantee that
provided by the product certification body for
states that an Air Conditioning Device has met the SKEM with a
certain level of energy saving.
6. Indonesian National Standard, hereinafter abbreviated as
SNI is a standard set by the Agency
National Standardization and applies in the territory of the State
Unitary Republic of Indonesia.
7. The Product Certification Institute, hereinafter referred to as LSPro, is
an institute that carries out energy-saving certification activities for
Air Conditioning Devices.
based on LSPro management standards in accordance with
SNI ISO/IEC 17065:2012 concerning Conformity Assessment –
Requirements for Product, Process, Certification Bodies
and Services or changes thereto.
8. Testing Laboratory is a laboratory that
carry out energy saving tests for Devices
Air Conditioning based on management standards
Testing Laboratory according to SNI ISO/IEC
17025:2008 on General Requirements for
Testing Laboratory and Laboratory Competence
Calibration or changes.
9. Domestic producers are domestic industries
who carry out production activities and/or
assemble the main components into a Device unit
Air Conditioner.

10. Importer is any person who carries out activities inserting Air Conditioning Devices into the area Indonesian customs.
11. The Director General is the director general who has the task of organizing the formulation and implementation of policies in the field of coaching, control and supervision of geothermal activities, bioenergy, various new and renewable energy, and energy conservation.

CHAPTER II

IMPLEMENTATION OF THE SCHEME AND INCLUSION OF ENERGY SAVING LABEL

Part One General

Article 2

Domestic Producers and Importers are required to implement SKEM and include the Energy Saving Label on the Device Air Conditioners to be traded in the territory of the Unitary State of the Republic of Indonesia.

Article 3

- (1) Air Conditioning Equipment traded in territory of the Unitary State of the Republic of Indonesia as referred to in Article 2 must fulfill efficiency limits of SKEM.
- (2) SKEM efficiency limits on Air Conditioning Equipment as referred to in paragraph (1) is equivalent to the value Lowest EER on the Energy Saving Mark Label.
- (3) The efficiency limits of the SKEM as referred to in paragraph (2) is enforced with a time period stated in Attachment I which is an integral part from this Ministerial Regulation.

Article 4

Air Conditioning Devices as referred to in Article 3 is an Air Conditioning Device with types *single split wall mounted* largest cooling capacity 27,000 BTU/hour for *inverter* and *non-inverter* types with HS code ex 8415.10.10 or amendments thereto.

Article 5

- (1) Energy Saving Labels as referred to in Article 2 shows the energy saving level of the Device. Air Conditioner is depicted in numbers stars with the criteria listed in Appendix II which is an integral part of the Regulations This minister.
- (2) Criteria for Energy Saving Labels listed on the Air Conditioning Device must be according to actual energy performance.
- (3) Form and specifications of the Energy Saving Label on Air Conditioning Devices as referred to in Article (1) in accordance with Attachment III letters A and B which are an integral part of the Regulation This minister.

Part Two

Energy Saving Label Inclusion Permit

Article 6

- (1) Domestic producers and importers as referred to in Article 2 are required to obtain permission to include Energy Saving Labels from the Director.
General before attaching the Savings Label
Energy.
- (2) Domestic Producers and Importers as referred to in paragraph (1) is responsible for fulfillment of SKEM provisions and inclusion of Labels Energy Saving Mark on Air Conditioning Equipment traded in Indonesia.

Article 7

- (1) To obtain permission to include the Savings Label Energy as referred to in Article 6 paragraph (1), Domestic Producers and Importers must submit application to the Director General with attach the following requirements:
- a. Energy Saving Certificate;
 - b. Taxpayer Identification Number;
 - c. Company Deed of Establishment;
 - d. photocopy of certificate of use of SNI IEC mark 60335-2-40:2009 on Household Electrical Equipment Ladders and Similar Electrical Equipment – Safety or changes thereto for Conditioning Devices Air;
 - e. photocopy of SNI ISO quality management system certificate 9001:2015 or its amendments or letters statement of commitment to implement the system SNI ISO 9001:2015 quality management system or other quality management that is equivalent and must be has the scope of Air Conditioning Devices;
 - f. photo or image of the Air Conditioning Device product; g. how to read the Air Conditioning Device production code Air; and
 - h. planned production or import quantities for one year year.
- (2) In addition to attaching the requirements as referred to in paragraph (1), Importers must attach the requirements as follows:
- a. photocopy of General Import Identification Number (API-U); and
 - b. photocopy certificate ISO 9001:2015 or changes or management system standards other equivalent quality from the country of origin manufacturer products in English or its translation in English and must have a scope Air Conditioning Equipment;
- (3) Application for permission to include the Savings Label The energy as referred to in paragraph (1) by

Domestic Producers and Importers are submitted by most low Director or official equivalent to Director.

Article 8

- (1) The Director General verifies the Application for permission to include the Savings Label Energy from Domestic Producers and Importers as referred to in Article 7.
- (2) Based on the verification results as referred to in (1), the Director General may approve or reject the application for permission to include the Mark Label Save Energy no later than 7 (seven) working days from the date since the application is received in full.
- (3) If the application is approved, the Director General will grant permission for the inclusion of the Savings Label Energy.
- (4) In the case of an application for permission to include a Label Sign Energy Savings rejected, Director General informs in writing to the applicant accompanied by reasons rejection.

Article 9

- (1) Permission to include Energy Saving Labels is valid for a period of 3 (three) years from the date of determination and can be extended.
- (2) Application for extension of label inclusion permit Energy Saving Sign as referred to in paragraph (1) submitted by Domestic Producers and Importers to the Director General at the earliest 3 (three) months and at the latest 1 (one) month before the permit period.
end.
- (3) Application for extension of label inclusion permit Energy Saving Sign as referred to in paragraph (2) submitted by attaching:
 - a. Energy Saving Certificate as referred to in Article 7 paragraph (1) letter a which has been extended;
And

- b. the requirements as referred to in Article 7 paragraph (1) letters b to h in case there are changes.

Article 10

- (1) Domestic producers and importers who have obtained permission to include the Savings Label
Energy is required to prepare monthly reports regarding brand, type or kind, model, volume, and number of Devices Air Conditioner.
- (2) The monthly report as referred to in paragraph (1) submitted to the Director General every 3 (three) month.
- (3) In the case of an importer who has obtained permission to include an Energy Saving Label,
imports through ports that are not yet connected to *Indonesia National Single Window* system , Importers are required report the brand, type or kind, model, volume, and number of Air Conditioning Devices per operation imports addressed to the Director General.
- (4) Reporting as referred to in paragraph (2) and paragraph (3) (3) delivered directly or via online media .
- (5) Fulfillment of reporting obligations as referred to in paragraph (1) and paragraph (3) as material for consideration in granting permission to include the Savings Label
Energy or extension of permit for inclusion of Label Mark
Energy saving.

Part Three

Energy Saving Certificate

Article 11

- (1) Energy Saving Certificate as referred to in Article 7 paragraph (1) letter a is obtained through a process type 1a certification based on SNI ISO/IEC 17067:2013 or changes thereto.

(2) Energy Saving Certificate as referred to in

Article (1) at least includes:

- a. name and address of Domestic Producers and
Importer;
- b. name and address of the original manufacturer for the Device
Imported Air Conditioner;
- c. brand, type, type and cooling capacity
Air Conditioning Equipment;
- d. EER value;
- e. statement that it has complied with the SKEM and the amount
stars that can be listed; and
- f. date, name and signature of the person in charge
LSPro.

(3) The Energy Saving Certificate as referred to in paragraph (1) is valid
for 3 (three) years and can be
extended.

(4) In the event of technical changes to the Device

Air Conditioning during the validity period of the Savings Certificate
The energy as referred to in paragraph (3) which
affect the EER value, the Energy Saving Certificate does not
applies.

(5) If the validity period of the Energy Saving Certificate as referred to in
paragraph (3) has expired or
Energy Saving Certificate is not valid as
referred to in paragraph (4), Domestic Producers and
Importers are prohibited from including the Savings Label
Energy in Air Conditioning Devices.

Article 12

(1) Energy Saving Certificate as referred to in

Article 11 is published by LSPro which is accredited by
National Accreditation Committee for the scope of Devices
Air Conditioning and get assignment from
Director General.

(2) In cases where it is not yet available or not sufficiently available

The accredited LSPro as referred to in paragraph (1), the Director
General may appoint the relevant LSPro

Air Conditioning Device for a maximum of 3 (three) year.

(3) LSPro appointed by the Director General as follows:

referred to in paragraph (2) must obtain accreditation no later than 2 (two) years from the date of appointment.

(4) LSPro as referred to in paragraph (1) must have a Testing Laboratory or cooperate with
with an accredited Testing Laboratory by
National Accreditation Committee.

Article 13

To obtain an Energy Saving Certificate for a product
Air Conditioning Equipment, Domestic Manufacturers and
Importers submit a written application to LSPro accompanied by the following requirements:

- a. photocopy of business license;
- b. Taxpayer Identification Number; and
- c. 2 (two) Air Conditioning Device test samples units.

Article 14

(1) Delivery of Air Conditioning Equipment products by

Importer for:

- a. test samples as referred to in Article 13 letter c;
- b. test samples for SNI Safety;
- c. exhibition;
- d. research; and/or
- e. other needs with the aim of not traded,
does not require permission to include the Savings Label
Energy.

Article 15

(1) Energy Saving Certificate issued by LSPro
based on the test results carried out by

Testing Laboratory that carries out testing

Air Conditioning Device performance.

(2) Testing as referred to in paragraph (1)

conducted to determine the level of savings indicators

energy based on SNI 19-6713-2002 concerning

Ductless Air Conditioning and Heat Pumps -

Performance Testing and Assessment or changes thereto.

(3) Energy saving level indicators as referred to

in paragraph (2) is determined based on value measurement

EER for Air Conditioning Devices.

(4) Measurement of the EER value of Air Conditioning Devices

as intended in paragraph (2) for Devices

Non-inverter type air conditioners are made on

full load.

(5) Measurement of the EER value of Air Conditioning Devices

as intended in paragraph (2) for Devices

Inverter type air conditioners are operated on loads

full and 50% (fifty percent) load, with

EER value calculation as follows:

EER value = $0.4 \times (\text{full load EER}) + 0.6 \times (50\% \text{ (fifty percent) load EER})$.

(6) The load setting is 50% (fifty percent) as

referred to in paragraph (5) is as follows:

a. follow the steps according to the instruction manual
factory; and

b. The frequency on the compressor must show 50%
(fifty percent) of the load frequency value
full.

Article 16

Performance testing of Air Conditioning Devices as

referred to in Article 15 is implemented based on

Device performance testing requirements and procedures

Air Conditioning in accordance with the provisions in the Appendix

IV which is an integral part of the Regulations

This minister.

Article 17

- (1) Testing Laboratories as referred to in Article 12 paragraph (4) and Article 15 are laboratories testing in Indonesia accredited by the Committee National Accreditation or verified by LSPro according to SNI ISO/IEC 17025:2008 or its amendments.
- (2) In the case of a Testing Laboratory as referred to in referred to in paragraph (1) has been verified by LSPro but not yet accredited by the Accreditation Committee National, Testing Laboratories must be accredited no later than 2 (two) years since verification by LSPro.

Part Four

Inclusion of Energy Saving Label Signs

Article 18

- (1) Energy Saving Label on Air Conditioning Equipment
Air is listed on the product and packaging with the form and specifications as referred to in Article 5.
- (2) The Energy Saving Label on the products and packaging as referred to in paragraph (1) must be included by using a font size that is easy to read and proportional and printed or attached with material that is not easily lost.
- (3) Energy Saving Labels on products and packaging as referred to in paragraph (1) may using one contrasting color.

Article 19

Inclusion of Energy Saving Labels on products and Air Conditioning Equipment packaging from imports carried out in the country of origin.

CHAPTER III

GUIDANCE AND SUPERVISION

Article 20

(1) Guidance and supervision of inclusion

Energy Saving Label on Air Conditioning Equipment
Air is carried out by the Director General in coordination
with related agencies.

(2) In carrying out guidance and supervision of

Inclusion of Energy Saving Label on Devices
Air Conditioning, the Director General may form
The team came from representatives of the Directorate General
New, Renewable Energy and Energy Conservation
Ministry of Energy and Mineral Resources and
relevant agencies.

Article 21

Guidance on the inclusion of Energy Saving Labels
on the Air Conditioning Device as referred to
in Article 20 is implemented through:

- a. technical guidance; and
- b. dissemination of information through print media, electronic media, energy stakeholder
forums,
or exhibition.

Article 22

(1) Supervision of the inclusion of the Savings Label

Energy in Air Conditioning Devices as
referred to in Article 20 shall be implemented against:
a. ownership of a permit to include the Savings Label
Energy;
b. conformity of the Energy Saving Label
listed on the Air Conditioning Device
with actual energy performance; and
c. compliance with the implementation of SKEM and inclusion
Energy Saving Sign Label.

(2) Supervision to implementation provision
as intended in paragraph (1) letters a and b
implemented by the Director General.

(3) Supervision of compliance with the implementation of SKEM
and the inclusion of Energy Saving Labels
as referred to in paragraph (1) letter c
implemented by the Director General or implemented
in accordance with the provisions of laws and regulations
invitation.

CHAPTER IV

SANCTIONS

Article 23

Domestic Producers and Importers who carry out
Violation of conformity criteria in the Savings Label
Energy listed on Air Conditioning Devices
with the actual energy performance as intended
in Article 5 paragraph (2) administrative sanctions are imposed.

Article 24

Domestic Producers and Importers who do not prepare
and submit reports regarding brands, types or kinds,
model, volume and number of Air Conditioning Devices
produced or imported as referred to in Article
10 were subject to administrative sanctions.

Article 25

- (1) Administrative sanctions as referred to in Article
23 and Article 24 are:
- a. written warning; and
 - b. revocation of the permit to include the Savings Label
Energy.
- (2) The written warning as referred to in paragraph (1)
letter a is given a maximum of 3 (three) times with
The warning period for each is a maximum of 1 (one) month.

- (3) In the case of Domestic Producers and Importers who
subject to a written warning sanction for not carrying out the
his obligations after the end of the term
the third written warning as referred to in
(2), the Director General shall impose sanctions in the form of
revocation of permit to include the Savings Label
Energy.

Article 26

- (1) Domestic Producers and Importers who:
- a. does not include the Energy Saving Label
as referred to in Article 2;
 - b. include an Energy Saving Label on the
when the validity period of the Energy Saving Certificate has
expired or is no longer valid as intended
in Article 11 paragraph (5); or
 - c. include an Energy Saving Label on the
during the validity period of the permit to include the Label Sign
Energy Saving has ended,
subject to sanctions.
- (2) The sanctions referred to in paragraph (1) are:
- a. withdrawal of Air Conditioning Equipment from circulation
for Domestic Producers; or
 - b. withdrawal from circulation, order for export,
or destruction of Air Conditioning Equipment for
Importer.
- (3) Procedures for withdrawal from circulation, export, or
Destruction of Air Conditioning Equipment as referred to in
paragraph (2) is carried out in accordance with the provisions of
statutory regulations.
- (4) All losses and costs of withdrawal from circulation,
commands for export, or destruction of the Device
Air Conditioning as referred to in paragraph (2)
charged to Domestic Producers and Importers.

Article 27

In the case of Domestic Producers and Importers, trading Air Conditioning Equipment after being subject to administrative sanctions as referred to in Article 25 Article (1) letter b, shall be subject to sanctions as referred to in Article 26 paragraph (2).

CHAPTER V

TRANSITIONAL PROVISIONS

Article 28

When this Ministerial Regulation comes into force:

- a. Permission to include the SKEM mark and the Savings Label Energy that has been issued based on the Regulation Minister of Energy and Mineral Resources Number 07 2015 on the Implementation of Energy Performance Standards Minimum and Inclusion of Energy Saving Labels for Air Conditioning Devices remains valid until expired;
- b. Domestic producers and importers who already have permission to include the SKEM mark based on the Regulation Minister of Energy and Mineral Resources Number 07 2015 on the Implementation of Energy Performance Standards Minimum and Inclusion of Energy Saving Labels on Air Conditioning Devices is not mandatory include the SKEM mark; and
- c. import permit application submitted before
The enactment of this Ministerial Regulation continues to be processed in accordance with the provisions of this Ministerial Regulation.

CHAPTER V

CLOSING

Article 29

At the time this Ministerial Regulation comes into force, the Regulation Minister of Energy and Mineral Resources Number 07 of 2015 concerning the Implementation of Minimum Energy Performance Standards and

Inclusion of Energy Saving Labels for Appliances
Air Conditioning (State Gazette of the Republic of Indonesia Year
2015 Number 139), revoked and declared invalid.

Article 30

This Ministerial Regulation shall come into force on the date
enacted.

So that everyone knows, order
promulgation of this Ministerial Regulation by placing it
in the State Gazette of the Republic of Indonesia.

Set in Jakarta
on December 18, 2017

MINISTER OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA,

ttd

IGNASIUS JONAN

Enacted in Jakarta
on December 21, 2017

DIRECTOR GENERAL
LEGISLATION
MINISTRY OF LAW AND HUMAN RIGHTS
REPUBLIC OF INDONESIA,

ttd

WIDODO EKATJAHJANA

APPENDIX I
REGULATION OF THE MINISTER OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA
NUMBER 57 OF 2017
ABOUT
IMPLEMENTATION OF MINIMUM ENERGY PERFORMANCE STANDARDS AND
ENERGY SAVING LABELING FOR DEVICES
AIR CONDITIONING

TIME PERIOD OF THE SCHEME IMPLEMENTATION

TIME PERIOD	SCHEME VALUE
Until July 31, 2018	8.53
August 1, 2018 – July 31, 2020	9.01
August 1, 2020 and onwards	9.96

MINISTER OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA,

ttd.

IGNASIUS JONAN

APPENDIX II
REGULATION OF THE MINISTER OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA
NUMBER 57 OF 2017
ABOUT
IMPLEMENTATION OF MINIMUM ENERGY PERFORMANCE STANDARDS AND
ENERGY SAVING LABELING FOR DEVICES
AIR CONDITIONING

ENERGY SAVING LABEL CRITERIA
ON AIR CONDITIONING DEVICES

☆	☆ ☆	☆ ☆ ☆	☆ ☆ ☆ ☆
8.53 ≤ EER < 9.01	9.01 ≤ EER < 9.96	9.96 ≤ EER < 10.41	10.41 ≤ EER

MINISTER OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA,

ttd.

IGNASIUS JONAN

APPENDIX III

REGULATION OF THE MINISTER OF ENERGY AND MINERAL RESOURCES

REPUBLIC OF INDONESIA

NUMBER 57 OF 2017

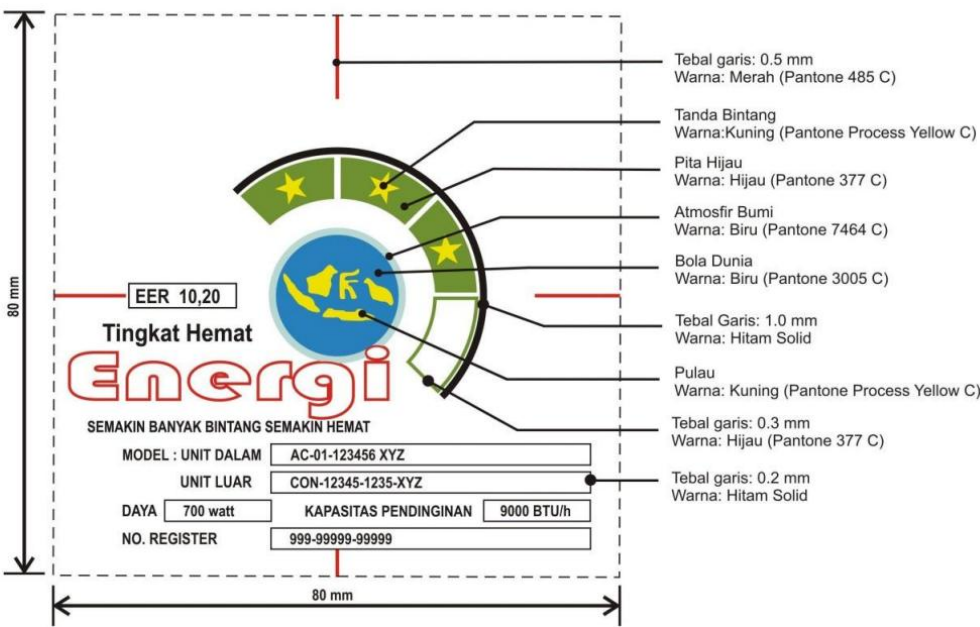
ABOUT

IMPLEMENTATION OF MINIMUM ENERGY PERFORMANCE STANDARDS AND ENERGY SAVING LABELING FOR DEVICES

AIR CONDITIONING

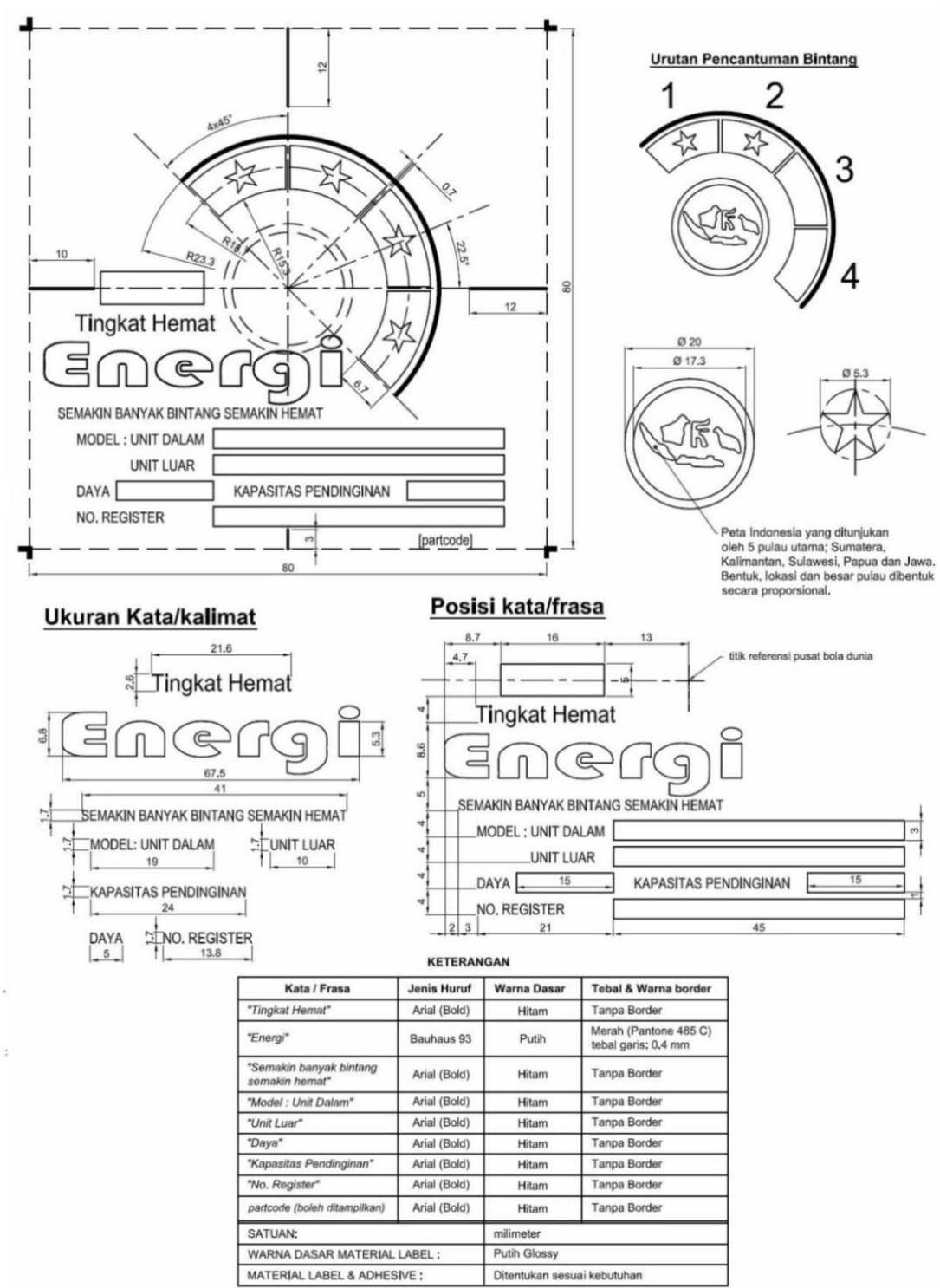
A. FORM OF ENERGY SAVING LABEL ON THE DEVICE

AIR CONDITIONING



B. SPECIFICATIONS OF ENERGY SAVING LABELS ON DEVICES

AIR CONDITIONING



MINISTER OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA,

ttd.

IGNASIUS JONAN

APPENDIX II

REGULATION OF THE MINISTER OF ENERGY AND MINERAL RESOURCES

REPUBLIC OF INDONESIA

NUMBER 57 OF 2017

ABOUT

IMPLEMENTATION OF MINIMUM ENERGY PERFORMANCE STANDARDS AND
ENERGY SAVING LABELING FOR DEVICES
AIR CONDITIONING

PERFORMANCE TESTING REQUIREMENTS AND PROCEDURES

AIR CONDITIONING DEVICES

A. General

1. Scope of Performance Testing

- a. These performance measurement requirements and procedures establish the testing method for *single split wall mounted* Air Conditioning Appliances that use one air-cooled evaporator and one condenser, utilize single-phase electrical energy, and have a maximum cooling capacity of 7.9 kW or 27,000 BTU/hour.
- b. The *single split wall mounted* type of Air Conditioning Device as referred to in letter a is a type of Air Conditioning Device that is mounted on a wall and is equipped with a single assembly unit consisting of one outdoor unit and one indoor unit designed as an inseparable system in accordance with ISO 5151:2010 and IEC 60335-2-40:2010.

2. Product Type

The types of air conditioning equipment that underwent performance testing consisted of:

- a. *non-inverter type*; and
- b. *inverter type*.

B. Objectives

The purpose of these Air Conditioning Equipment performance testing requirements and procedures is to determine the level of energy efficiency, cooling capacity, and electrical power consumption in accordance with the test conditions set out in order to include the Energy Saving Label in accordance with SNI 04-6958-2003.

C. References

The requirements and procedures for testing the performance of this Air Conditioning Equipment refer to:

1. SNI 04-6958-2003 concerning the Use of Electricity for Household and Similar Needs – Energy Saving Labels; and
2. SNI 19-6713-2002 concerning Ductless Air Conditioners and Heat Pumps Testing and Performance Assessment or its amendments which are an adoption of ISO 5151:1994.

D. Definition and Methods of Performance Testing

All definitions and performance testing methods are in accordance with SNI 19-6713-2002 namely the calorimeter method and the air enthalpy method .

E. Performance Testing Procedures

To carry out performance testing procedures, it is necessary to prepare the following tools and equipment and steps:

1. Tools and equipment required:
 - a. calorimeter or air enthalpy type *climatic chamber* ;
 - b. vacuum pump;
 - c. vacuum meter;
 - d. stroboscope/rotational speed meter (*stroboscope tachometer*);
 - e. timer (*stopwatch*);
 - f. pipe end widening tool (*flaring set*);
 - g. pipe cutter;
 - h. torque wrench ;
 - i. wrench/spanner;
 - j. L key;
 - k. *manifold*;
 - l. soapy water;
 - m. nitrogen (N₂);
 - n. water level;
 - o. meter/roll meter;
 - p. digital scales with a minimum accuracy of 5 (five) grams; and
 - q. copper pipe with flexible protective insulator with a length of 7.5 m (seven point five meters) \pm 10 cm (ten centimeters).
2. Preparation before testing:
 - a. check and ensure that the packaging of the Air Conditioning Device product is not damaged;
 - b. check and ensure that the user manual or operating manual for the Air Conditioning Device is available;

c. check the physical condition of the Air Conditioning Device product regularly visual:

- 1) Make sure the fins or air fins do not look damaged, either on the *indoor* or *outdoor unit*;
- 2) Make sure the *indoor* or *outdoor* fan does not look cracked, damaged, or touching other parts;
- 3) ensure that no accessory components are missing or incomplete as described in the operating manual; and
- 4) make sure there is a valve cover or no damage to the pipe connection threads between the *indoor* and *outdoor parts*;

d. Note the specifications of the Air Conditioning Device as follows:

- 1) the brand, model and serial number of the Air Conditioning Equipment, both *indoor* unit and *outdoor unit*;
- 2) the length and diameter of the pipe used, both pressure pipes low and high pressure pipes;
- 3) the type of refrigerant and the weight of the refrigerant used; and
- 4) technical specifications such as the cooling capacity of the device Air Conditioner, power consumption, current, compressor frequency, COP or EER, etc.;

e. weigh the *outdoor* unit of the Air Conditioning Device to ensure that there is no leakage of refrigerant in the *outdoor* unit during, before, and after testing;

f. Prepare a copper pipe that has been given an insulating sheath with a length of 7.5 m (seven point five meters) \pm 10 cm (ten centimeters) with a diameter that matches the recommendations of the Air Conditioning Device manufacturer to connect the *indoor* and *outdoor* parts of the Air Conditioning Device.

3. Performance Testing Steps

a. installation or installation of the Air Conditioning Unit will be tested:

- 1) Install the *indoor* unit of the Air Conditioning Device on its stand as shown in Figure 1 and use a spirit level to ensure that the installation is not tilted;

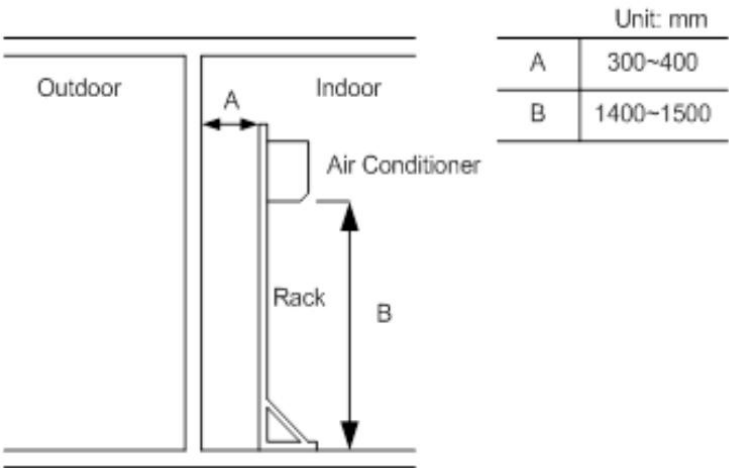


Figure 1.

Split Air Conditioning Device Type

2) Install the outdoor Air Conditioning Unit on its stand as shown in Figure 2 and Figure 3;

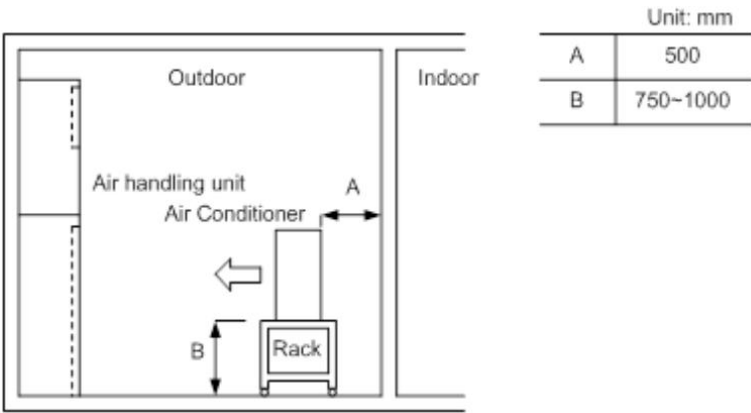


Figure 2.

Outdoor unit installation with horizontal wind flow

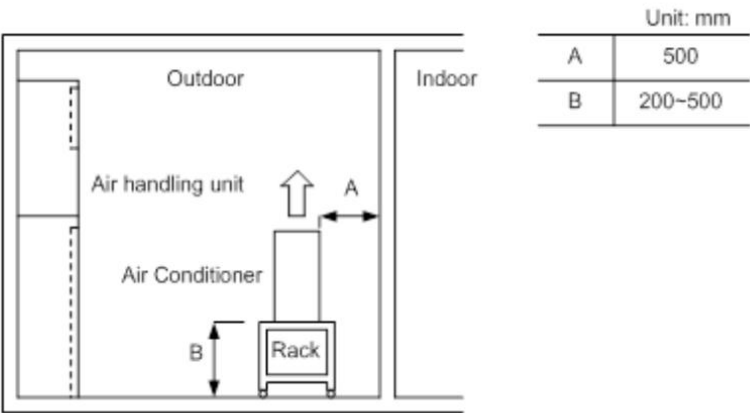


Figure 3.

Outdoor unit installation with vertical wind flow

- 3) expand the ends of each copper connection pipe using *flaring* and adjust to the diameter of the pipe used;
 - 4) Connect the *indoor* side low pressure pipe (e.g. 3/8 inch pipe) with the *outdoor* side low pressure pipe of the appliance.
Air Conditioner, also for the high pressure side pipe (for example 1/4 inch pipe);
 - 5) Tighten each pipe connection using a *torque wrench* (for 3/8 inch pipe with a torque of 41.2 Nm or 420 kgf.cm and 1/4 inch pipe with a torque of 18 Nm);
 - 6) Close tightly or use tape/duct tape the hole in *the chamber* that connects the pipe between the *indoor* unit and the *outdoor unit*; and
 - 7) After all the pipes are properly installed, proceed to pipe leak check steps;
- b. checking for leaks in connecting pipes:
- 1) Connect the refrigerant filling valve/nipple to the tube.
Nitrogen (N2) uses a hose and charge valve ;
 - 2) slowly open the tap on the Nitrogen (N2) cylinder until the *manifold* pressure indicator shows a value of 2 (two) MPa;
 - 3) check each pipe connection using soapy water or a special liquid used to check for gas leaks;
 - 4) Make sure that each connection does not leak. If there is a leak, this is indicated by the appearance of air bubbles;
 - 5) if there is a leak, then tighten the pipe connection again until there is no gas leak at all; And
 - 6) If the results of the leak check on the pipe connection show no leaks, the test can proceed to the next step.

c. vacuum process:

- 1) Connect the filling valve/nipple to the *outdoor* unit of the device.
Air Conditioner and valve A, valve B, and vacuum pump as shown in Figure 4;

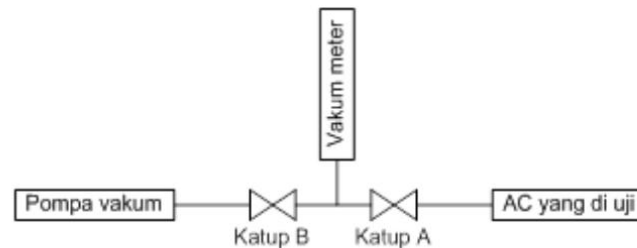


Figure 4.

Vacuuming process

- 2) Connect a vacuum meter between valve A and valve B to measure the vacuum level of the Air Conditioning Device unit.
The air being tested and the length of the pipe/hose for the vacuum meter should be as short as possible;
 - 3) open valve A, valve B, and filling valve and turn on the vacuum pump to start the vacuum process;
 - 4) carry out the vacuum process until the vacuum level reaches below 66.5 Pa (approximately 60 (sixty) minutes);
 - 5) when the vacuum process has fallen below 66.5 Pa, close valve B, and make sure only the vacuum meter connected to the Air Conditioning Device unit is being vacuumed, read and observe the vacuum level after the pressure is stable. After 10 (ten) minutes, the pressure change should not exceed 133 Pa (1.0 Torr);
 - 6) After all conditions are met, open valve B and continue the vacuuming process for 5 (five) minutes;
 - 7) after vacuuming for 5 (five) minutes, remove it filling valve and turn off the vacuum pump; and
 - 8) open the low pressure side valve and high pressure valve on the *outdoor* unit of the Air Conditioning Device to circulate the refrigerant throughout the Air Conditioning Device;
- d. installation of interconnection cables between *indoor* and *outdoor* and *Thermocouple* installation :
- 1) Connect the interconnection cable between the *indoor* unit terminal and the *outdoor* unit terminal of the Air Conditioning Device under test using the cable according to the manufacturer's instructions;

- 2) prepare several *thermocouples* used to measure the temperature in the Air Conditioning Device unit to be tested;
- 3) Install *the thermocouple* in the following positions:
 - a) *indoor* unit
 - i. refrigerant heat exchanger input ;
 - ii. the middle side of the refrigerant heat *exchanger* *refrigerant middle*);
 - iii. the outlet side of the refrigerant heat *exchanger* *refrigerant output*);
 - iv. outflow of air (*air outlet*); And
 - v. inlet air flow (*air inlet*);
 - b) *outdoor* unit
 - i. refrigerant heat exchanger input ;
 - ii. the middle side of the refrigerant heat *exchanger* *refrigerant middle*);
 - iii. the outlet side of the refrigerant heat *exchanger* *refrigerant output*);
 - iv. compressor suction side ; and
 - v. compressor discharge side ;
- 4) use aluminum tape *or* other *adiabatic adhesive* tape to attach *the thermocouple* to the part to be measured;
- e. installation or installation of a special *receiving chamber* for testing Air Conditioning Devices using the air enthalpy method . Testing with the calorimeter method does not carry out this process.
 - 1) Prepare *the receiving chamber* to measure the airflow *that* comes out or is produced from the *indoor* part of the device.
Air Conditioner to be tested;
 - 2) Connect *the air outlet* from *the indoor* unit of the Air Conditioning Device under test to *the receiving chamber*;
 - 3) close all holes around the *receiving chamber* inlet and the Air Conditioning Device *outlet water* uses *polyfoam* or *polyurethane* and glued with tape/duct tape; and
 - 4) make sure that no air can escape through the connection gap between *the air outlet* of the Air Conditioning Device and *the receiving chamber*;

f. installation or installation of air sampler :

- 1) Installation or installation of *the water sampler* for the *indoor* unit is carried out in accordance with the provisions in Figure 5;
- 2) The thing that needs to be noted is that the direction of *the water sampler* hole must be installed in the opposite direction to the direction of the air flow towards the Air Conditioning Device unit so that *the water sampler* can capture the air to be measured; and

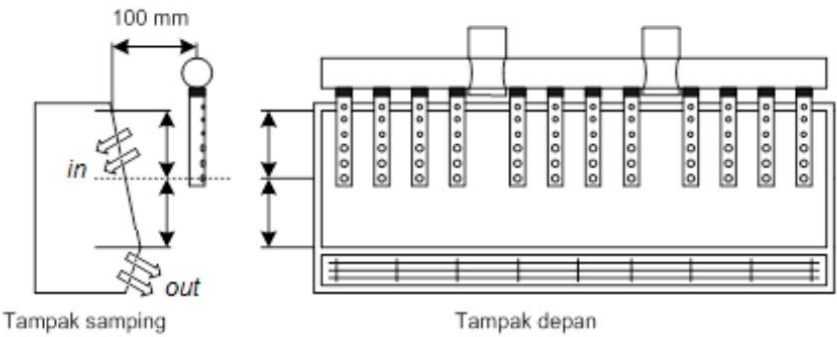


Figure 5.

Installation/mounting of *water sampler* on *indoor* unit

- 3) Installation of *the water sampler* on the *outdoor* unit is carried out in accordance with the provisions in Figure 6 and Figure 7.
- 7;

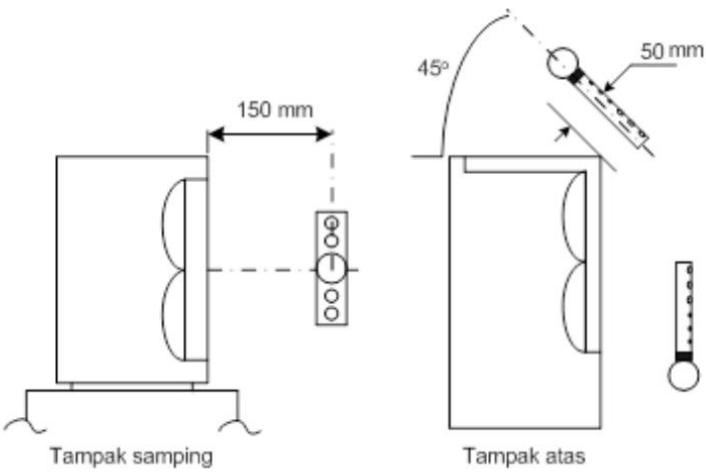


Figure 6.

Installation/mounting of *water sampler* on *outdoor* unit
with L type condenser

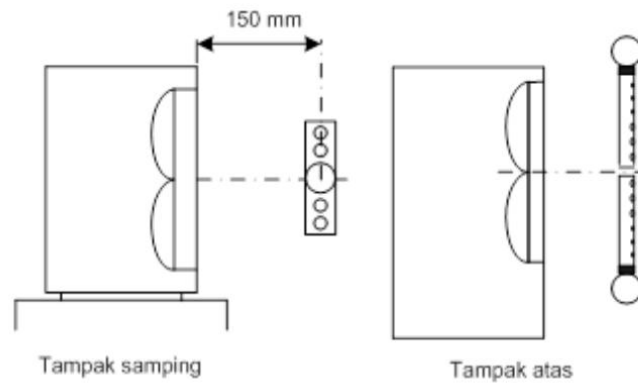


Figure 7.

Installation/mounting of *water sampler* on *outdoor* unit with flat condenser

4. Environmental Temperature Conditions of Testing

a. *indoor unit*:

Dry Bulb Temperature: 27oC (twenty seven degrees Celsius);

Wet Bulb Temperature: 19oC (nineteen degrees Celsius);

b. *outdoor unit*:

Dry Bulb Temperature: 35oC (thirty five degrees Celsius);

Wet Bulb Temperature: 24oC (twenty four degrees Celsius).

5. Testing the Cooling Capacity of Air Conditioning Devices

a. testing the cooling capacity of *non-* air conditioning devices *inverter*

- 1) Connect the Air Conditioning Device plug to the voltage supply socket terminal on *the chamber* and turn it on;
- 2) set the Air Conditioning Device so that it operates in position mode: *cool*;
- 3) set the temperature of the Air Conditioning Device so that it produces the lowest temperature;
- 4) Set the fan rotation to the maximum speed position;
- 5) Set the position of the air flow guide (*damper* and *grill*) to the maximum opening position or according to the manufacturer's instructions;

6) specifically for cooling capacity testing using the calorimeter method:

a) set the *cooling water* flow rate (*indoor side*) to between 100~1500 kg/h; and

b) set the *brine* flow rate (*outdoor side*) to 400~10,000 kg/h;

7) specifically for testing cooling capacity using air enthalpy method :

- a) turn on the airflow testing *facility*
found in *the receiving chamber*; And
- b) maintain the static pressure difference between *the discharge water*
The Air Conditioning Device tested in *the receiving chamber* and *chamber* is 0 Pa and the
air velocity *is* between 15 m/s to 35 m/s by adjusting *the nozzle* used in *the receiving*
chamber;

- 8) leave the Air Conditioning Device operating until
conditions as described in Table 1 are achieved;
- 9) after the conditions in Table 1 are achieved, leave it for more than one hour;
- 10) new test data collection can be carried out after the conditions as described in Table 1 have
been achieved for more than 1 (one) hour;
- 11) Data collection is carried out every 5 (five) minutes for 7 times.
(seven) times;
- 12) if necessary, data collection is not only carried out 7 (seven) times, but can be done more than
7 (seven) times so that the best data is used in the test report;
- 13) After completing the data collection, measure the fan rotation speed, both *indoor* and *outdoor*
parts of the Air Conditioning Device, using *a stroboscope* or *tachometer*;
- 14) record the test data in the test results report sheet;
And
- 15) carry out the test termination process (*pump down*) as
explained in number 6.

Table 1. Temperature and humidity conditions

	Reading Temperature	Settings run temperature	Storage bro (average)	Deviation maximum (Measured value every minute)
Air temperature who entered	ÿ Ball Dry ÿ Ball	27.0oC 19.0oC	± 0.3oC ± 0.2oC	± 1.0oC ± 0.5oC

<i>indoor side</i>	Wet			
Air temperature	ȳ Ball			
who	Dry	35.0oC	± 0.3oC	± 1.0oC
entered	ȳ Ball	24.0oC	± 0.2oC	± 0.5oC
<i>outdoor side</i>	Wet			

b. testing the cooling capacity of the Air Conditioning Device type *inverter*

For testing of *inverter* type Air Conditioning Devices , two tests were carried out, namely:

- 1) Testing of *inverter* type air conditioning devices with load full
- a) Connect the Air Conditioning Device plug to the voltage *supply* socket terminal on *the chamber* and turn it on;

b) set the mode, temperature, fan speed, *damper* and *grill*, and others of the Air Conditioning Device being tested according to the manufacturer's instructions so that the Air Conditioning Device can work under full load conditions; and

c) carry out steps 6) to 15) as described in letter a.
- 2) Testing of *inverter* type Air Conditioning Device with 50% (fifty percent) full load
- a) Connect the Air Conditioning Device plug to the voltage *supply* socket terminal on *the chamber* and turn it on;

b) set the mode, temperature, fan speed, *damper* and *grill*, etc. of the Air Conditioning Device being tested according to the manufacturer's instructions so that the Air Conditioning Device can work at half of the full load condition.

If there are no instructions from the manufacturer, then 50% (fifty percent) of the full load can be determined by setting the compressor input frequency at 25 Hz; and

c) carry out steps 6) to 15) as described in letter a.

6. Testing Termination Process (*Pump Down*)

To stop operating the Air Conditioning Device, follow the procedures from the Air Conditioning Device manufacturer or the following steps:

- a. Leave the Air Conditioning Device in the on condition for approximately 30 (thirty) minutes;

- b. Close the high pressure valve (small pipe) on the *outdoor* part of the Air Conditioning Device using an L key, then after it is tightly closed, let the system continue working for approximately 1 (one) minute so that the refrigerant in the *indoor* unit and pipe can be sucked or collected back into the compressor;
- c. After approximately 1 (one) minute, close the low pressure valve (large pipe) on the *outdoor part of the Air Conditioning Device*;
- d. Turn off the Air Conditioning Unit by unplugging the plug.
the contact from the socket;
- e. for testing Air Conditioning Devices using the air enthalpy method , remove *the receiving chamber* from the *indoor unit*;
- f. Remove the interconnection cable connecting the device.
Air Conditioner *indoor* unit and *outdoor unit*;
- g. Remove *the thermocouple* attached to the Conditioning Device unit.
Air;
- h. remove all pipes connecting the *indoor* and *outdoor* units of the Air Conditioning Device using a wrench or spanner;
- i. remove the *indoor* unit from its stand then clean it and let it dry so that there is no more water remaining from the previous test;
- j. Lift the *outdoor* unit from its stand then weigh it using a digital scale, note the weight of the *outdoor* unit.
and compare it with the weighing results before the test was carried out; and
- k. After cleaning, repack the Air Conditioning Unit as before, both *the indoor* and *outdoor units*.

F. Test Data and Reports

1. Testing Laboratory

The test result data that is recognized is the data generated by Testing Laboratory accredited by the Accreditation Committee National or Testing Laboratory member of *Asia Pacific Laboratory Accreditation (APLAC)* or *International Laboratory Accreditation (ILAC)*.

2. *Witness test* at the manufacturer's laboratory

The results of the manufacturer's laboratory tests can be recognized if the laboratory has implemented the SNI ISO 17025 standard, meets the testing requirements according to SNI 19-6713-2002, and during testing is witnessed/supervised by testing experts competent from LSPro (*witness test*).

3. Test Report

All test results must be stored and documented in Test Report form containing measurement result data, performance characteristics, and other details including test reports repeat if necessary. A copy of the report must be kept in the Testing Laboratory for reference. The data is valid as long as the product traded in Indonesia. The test report format for Air Conditioning Devices using the calorimeter method is as shown in Table 2 and the air enthalpy method (*air enthalpy*) as shown in Table 3.

Table 2

AIR CONDITIONING EQUIPMENT TESTING REPORT
CALORIMETRE METHOD

Brand / Model :

Report Number :

Part 1: Testing Laboratory	
1. Test Date (day/month/year)	
2. Name of Testing Laboratory	
3. Testing Laboratory Location	

4. Name of Testing Officer	
5. Name of Laboratory Manager Testing (Head of Laboratory)	

Part 2: Product Specifications

1. Brand		
2. <i>Indoor</i> Unit Model		
3. <i>Outdoor</i> Unit Model		
4. Country of Origin		
5. Refrigerant		
6. Refrigerant Amount (kg)		
7. Voltage (V)		
8. Frequency (Hz)		
9. Electric Current (A)		
10. Weight of <i>indoor unit/ outdoor</i> unit (kg)		
11. <i>Indoor</i> Unit Dimensions (LxWxH) (mm)		
12. <i>Outdoor</i> Unit Dimensions (LxWxH) (mm)		
13. Cooling Capacity (BTU/hour)	Full load	50% full load
14. Electrical Power (W)	<i>Indoor</i> unit	<i>Outdoor</i> unit

Part 3: Cooling Capacity Testing

1. Testing Standards		
2. Testing Method	Calorimeter	
	Full load	50% full load*)
3. Voltage (V)		
4. Frequency (Hz)		
5. Total Work Flow (A)		
6. Testing Time (hours)		
7. Total Cooling Capacity (BTU/hour)		
8. <i>Sensible</i> Cooling Capacity (BTU/hr)		
9. <i>Latent</i> Cooling Capacity (BTU/hr)		

10. Total Electrical Power (W)		
11. EER - <i>Energy Efficiency Ratio</i> (BTU/hour)/W)		
12. <i>Barometric</i> Pressure (kPa)		
13. <i>Indoor</i> Unit Fan Speed (RPM)		
14. Air flow rate on the <i>indoor</i> unit (m3/s of <i>standard air</i>)		
15. External Resistance to <i>Indoor</i> Unit Air Flow (Pa)		
16. Volume of air flow through the measuring <i>nozzle</i> (m3/s)		
17. The difference in static air pressure separating the calorimeter compartments (Pa)		
18. Dry Bulb and Wet Bulb Temperature (°C) (Inside the <i>calorimeter compartment</i>)		
19. Dry Bulb and Wet Bulb Temperature (°C) (Outside of the calorimeter compartment)		
20. Average air temperature outside the calorimeter (°C)		
21. Amount of water evaporated in <i>Humidifier</i> (kg)		
22. Cooling water flow <i>rate</i> which passes through the outside of the <i>heat-rejection</i> coil compartment (P/dt)		
23. Temperature of cold water entering the outside of the <i>heat-rejection</i> coil compartment. (°C)		
24. Temperature of cold water exiting the outside of the <i>heat-rejection coil</i> compartment (°C)		
25. Mass of condensed water from the product (kg)		
26. Temperature of condensed water (°C) leaving the outside of the compartment (°C)		

*)Only for Inverter type Air Conditioner Devices

Part 4: Signature

- 1. Name and signature of the person responsible for testing
- 2. Date

Appendix A – Photos

1. Color photos showing the *indoor* unit and *outdoor* unit of the Air Conditioning Device product being tested.
2. Color photo showing the number of connectors on the *outdoor* unit.
3. Color photo of the product *nameplate*

Appendix B – Schematic Drawing

Schematic drawing that clearly shows the main components of the product.

Appendix C– List of Components

Technical specifications and list of main components of the product

Table 3

AIR CONDITIONING EQUIPMENT TESTING REPORT
AIR ENTHALPY METHOD

Brand / Model :

Report Number :

Part 1: Testing Laboratory

1. Test Date (day/month/year)	
2. Name of Testing Laboratory	
3. Testing Laboratory Location	
4. Name of Testing Officer	
5. Name of the Person in Charge of the Testing Laboratory (Head of Laboratory)	

Part 2: Product Specifications

1. Brand		
2. <i>Indoor</i> Unit Model		
3. <i>Outdoor</i> Unit Model		
4. Country of Origin		
5. Refrigerant		
6. Refrigerant Amount (kg)		
7. Voltage (V)		
8. Frequency (Hz)		
9. Electric Current (A)		
10. Weight of <i>indoor unit/ outdoor</i> unit (kg)		
11. Indoor unit dimensions (<i>LxWxH</i>) (mm)		
12. Outdoor unit dimensions (<i>LxWxH</i>) (mm)		
13. Cooling Capacity (BTU/hour)	Full load	50% full load
14. Electric Power (W)	<i>Indoor</i> unit	<i>Outdoor</i> unit

Part 3: Cooling Capacity Testing

1. Testing Standards		
2. Testing Method	Enthalpy of Air (<i>Air Enthalpy</i>)	
	Full load	50% Full load*)
3. Voltage (V)		
4. Frequency (Hz)		
5. Total Work Flow (A)		
6. Testing Time (hours)		
7. Total Cooling Capacity (BTU/hour)		
8. Sensible Cooling Capacity (BTU/hr)		
9. <i>Latent</i> Cooling Capacity (BTU/hr)		
10. Total Electrical Power (W)		
11. EER - <i>Energy Efficiency Ratio</i> (BTU/hour)/W)		
12. <i>Barometric</i> Pressure (kPa)		
13. <i>Indoor</i> unit fan speed (RPM)		
14. Air flow rate in the <i>indoor</i> unit (m3/s of <i>standard air</i>)		
15. External Resistance to <i>Indoor</i> Unit Air Flow (Dad)		
16. Air flow volume and all measurements related to the calculation (m3/s)		
17. Dry Bulb Temperature of <i>indoor</i> unit inlet air (°C)		
18. Wet Bulb Temperature of <i>indoor</i> unit inlet air (°C)		
19. Dry Bulb Temperature of <i>indoor</i> unit exit air (°C)		
20. Wet Bulb Temperature of <i>indoor</i> unit outlet air (°C)		
21. Dry Bulb and Wet Bulb Temperature of <i>outdoor</i> unit (°C)		

*) Only for Inverter type Air Conditioning Devices

Part 4: Signature

- 1. Name and signature of the person responsible for testing
- 2. Date

Appendix A – Photos

- 1. Color photos showing the *indoor* unit and *outdoor* unit of the Air Conditioning Device product being tested.
- 2. Color photo showing the number of connectors on the *outdoor* unit.
- 3. Color photo of the product *nameplate*

Appendix B – Schematic Drawing

A schematic drawing that clearly shows the main components of the product.

Appendix C – Components List

Technical specifications and list of main components of the product

MINISTER OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA,

ttd.

IGNASIUS JONAN