Common appliance policy – All for one, One for all – Energy Labels

Contract N°: IEE/09/628/SI2.558219

Comparison of energy efficiency requirements of the energy labels and ecodesign legislations

(Work Package 2 – Deliverable 2.3)

June 2012

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with the support of: **Come On Labels partners**

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Come On Labels

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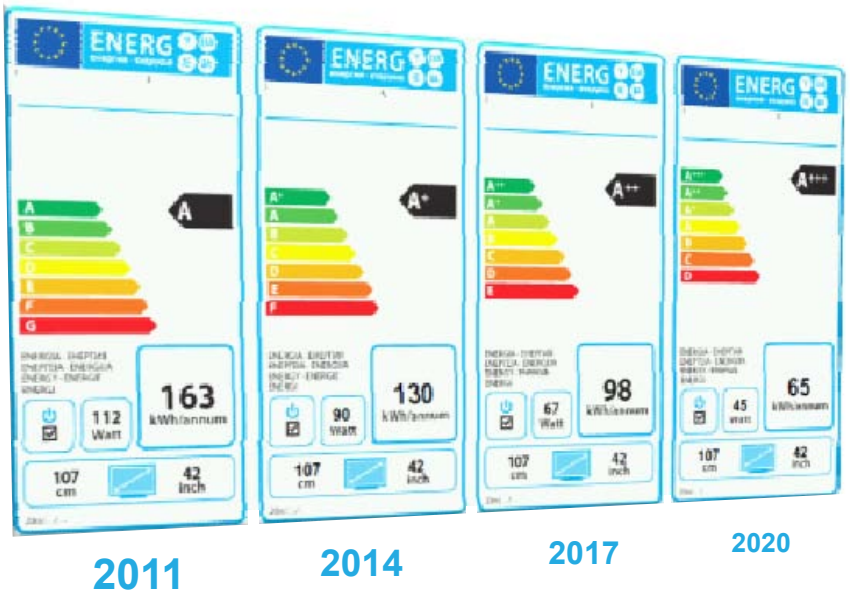


Source of picture: Market Trends on the TV Market and their Impact on Energy Consumption - Thilo Heyder, EEDAL, Copenhagen, May 2011

This document was prepared within the **Come On Labels project**, supported by the Intelligent Energy Europe programme. The main aim of the project, active in 13 European countries, is to support appliance energy labelling in the field of appliance tests, proper presence of labels in shops, and consumer education.

1. Overview of the Ecodesign and Labelling Requirements for Selected Products

The EU Energy labelling of major appliances and other products is a long known and appreciated tool for consumers, advising them on the energy efficiency and other functional performance qualities of models which they consider for their purchase.

The purpose of energy **LABELS** is to **rank all models of certain type of products** within certain energy class range, typically from A to G, or A+++ to D and **show this ranking at the points of sale.**

The **ECODESIGN** measures are another set of the EU legislation, that regulates the energy consumption and functional performance aspects of products through the setting of minimum requirements for the placing on the market or the putting into service of products. Contrary to the labelling, this legislation is **not "visible" to consumers,** as products entering the market shall automatically comply with the relevant requirements.

In certain cases both legislations apply to the same product types: for **washing machines, dishwashers, refrigerators, air-conditioning units, televisions, dryers and light sources** both energy label and ecodesign have been set through Commission Regulations.

In practice (at the points of sale) these types of products are displayed with the respective energy labels showing the full range of energy efficiency classes (e.g. A+++ to D), but at the same time the ecodesign legislation prohibits the market entry of models below a certain minimum energy efficiency class (eg. worse than class A).

This documents provides with a brief overview of the product groups and energy efficiency classes affected by both types of legislation.

The summary Table shown below compares the energy efficiency classes set in energy labelling and allowed by the ecodesign requirements for the most common product types (washing machines above 4 kg load, dishwashers above 10 place settings). Various dates of entry of the legislation into force are set for each product type, see individual chapters below for more detailed specification.

Table: Comparison of the energy efficiency classes in energy labelling and ecodesign requirements

Product group		Energy efficiency classes shown on the energy label	Energy efficiency classes allowed on the market by minimum ecodesign requirements	Energy efficiency classes shown on the label, but not allowed by minimum ecodesign requirements
Washing machines		A+++ / D	A+++ / A	B, C, D
Dishwashers		A+++ / D	A+++ / A	B, C, D
Refrigerating appliances	Compression type	A+++ / D	A+++ / A+	A, B, C, D
	Absorption type	A+++ / G	A+++ / E	F, G
Televisions		A / G	A / G	
Light sources		A / G	A / C	D, E, F, G

Note: A Commission delegated regulation No 392/2012 of 1 March 2012 with regard to energy labelling of household **tumble driers** has been also adapted and will enter force by end May / September 2013. The new energy label for tumble driers will contain A+++ / D energy classes. At the same time, the ecodesign regulation for this product group has been approved by the Regulatory Committee in May 2012 and suggests to limit the market entry of D and for some models C class models (one year after the entry into force of the Regulation).

Other product groups for which both the energy labelling and ecodesign legislations are being currently developed include: **ovens, water heaters, heating appliances and directional light sources**.

2. Washing machines

Energy label for washing machines shows energy efficiency classes from A+++ to D, but according to the ecodesign regulation for washing machines (above 4 kg of capacity) only models belonging to energy efficiency class A and better can enter the market since December 2011.

In addition, from December 2013 only A+ washing machine models will be allowed to enter the EU market.

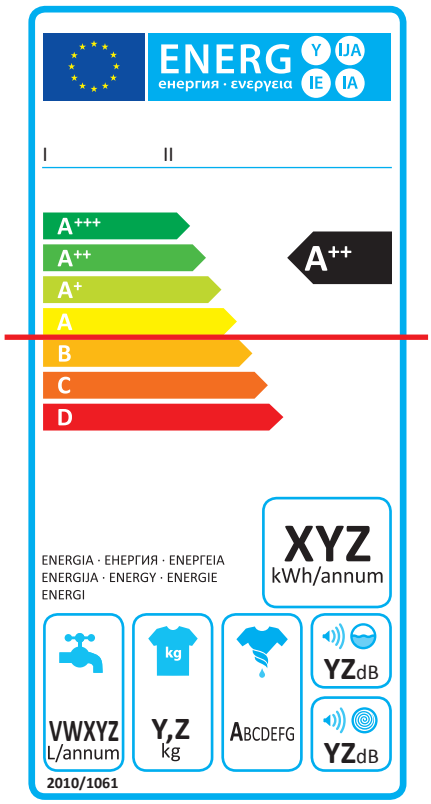
Washing Machines

Labelling

Energy Efficiency Class	Energy Efficiency Index
A+++ (most efficient)	EEI ≤ 46
A++	46 ≤ EEI < 52
A+	52 ≤ EEI < 59
A	59 ≤ EEI < 68
B	68 ≤ EEI < 77
C	77 ≤ EEI < 87
D (least efficient)	EEI ≥ 87

Ecodesign

Application Date	Min. Energy Efficiency Index	Type of products
01/12/2011	EEI < 68	
01/12/2013	EEI < 59	with a rated capacity equal to or higher than 4 kg



3. Dishwashers

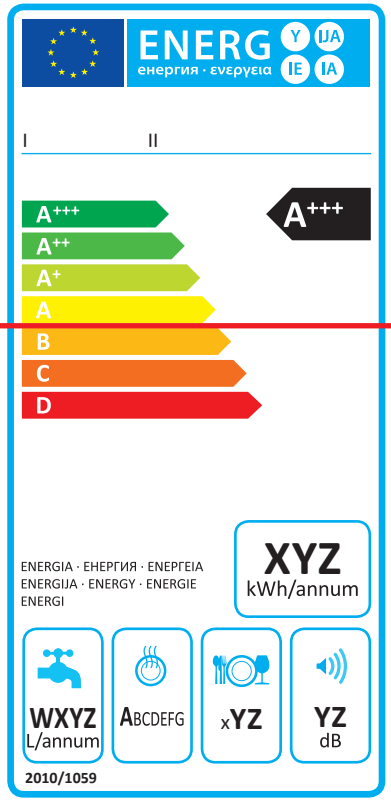
Energy label for dishwashers shows classes from A+++ to D, but according to the ecodesign regulation for dishwashers above 10 place settings and 45 cm width, only models belonging to energy efficiency class A and better can enter the market since December 2011.

In addition, from December 2013, only dishwasher models with energy efficiency class A+ and better will be allowed to enter the EU market.

Dishwashers

Labelling

Energy Efficiency Class	Energy Efficiency Index
A+++ (most efficient)	EEI < 50
A++	50 ≤ EEI < 56
A+	56 ≤ EEI < 63
A	63 ≤ EEI < 71
B	71 ≤ EEI < 80
C	80 ≤ EEI < 90
D (least efficient)	EEI ≥ 90



Ecodesign

Application Date	Min. Energy Efficiency Index	Types of products
01/12/2011	EEI < 71	except household dishwashers with a rated capacity of 10 place settings and a width equal to or less than 45 cm (which should have EEI < 80)
01/12/2013	EEI < 63	with a rated capacity equal to or higher than 11 place settings and household dishwashers with a rated capacity of 10 place settings and a width higher than 45 cm
01/12/2013	**EEI < 71**	with a rated capacity of 10 place settings and a width equal to or less than 45 cm
01/12/2016	**EEI < 63**	with a rated capacity of 8 and 9 place settings and household dishwashers with a rated capacity of 10 place settings and a width equal to or less than 45 cm

4. Refrigerating appliances

From July 2010, only refrigerating appliance models (of the most common compression type) belonging to energy efficiency class A are allowed to enter the EU market.

In addition, from July 2012, only refrigerating appliances in class A+ and better could enter the market.

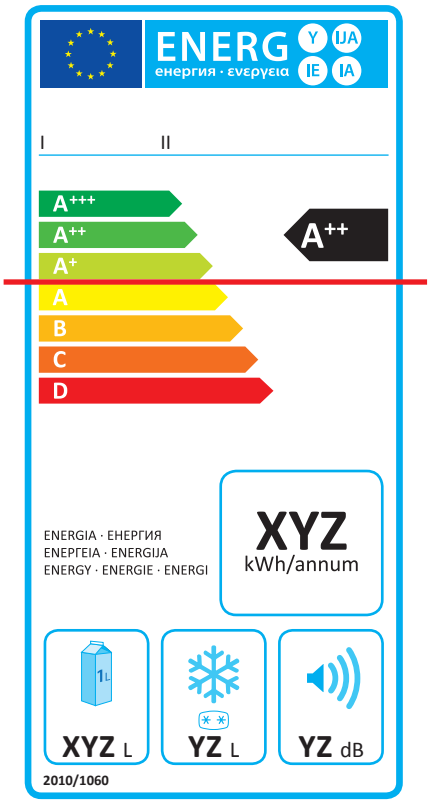
Refrigerating Appliances

Labelling

Energy Efficiency Class	Energy Efficiency Index
A+++ (most efficient)	EEI < 22
A++	22 ≤ EEI < 33
A+	33 ≤ EEI < 44
A	44 ≤ EEI < 55
B	55 ≤ EEI < 75
C	75 ≤ EEI < 95
D	95 ≤ EEI < 110
E	110 ≤ EEI < 125
F	125 ≤ EEI < 150
G (least efficient)	150 ≤ EEI

Ecodesign

Application Date	Compress-ion type	Absorption-type & others
01/07/2010	EEI < 55	EEI < 150
01/07/2012	EEI < 44	EEI < 125
01/07/2014	EEI < 42	—
01/07/2015	—	EEI < 110



5. Televisions

From November 2011 energy labels for TVs are mandatory for models entering the market. The energy efficiency class has a somewhat lower informative value about the energy consumption, as not all possible integrated functions (e.g. receiver, network functions) are taken into account.

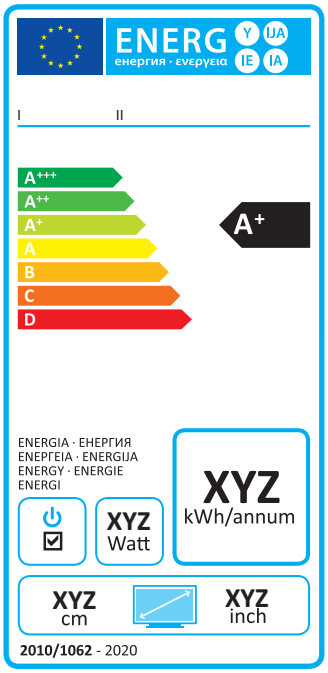
From 2014, 2017 and 2020, respectively, the range of energy classes on the energy label will be moved upwards, introducing A+ / A++ / and A+++ energy classes. This timetable may be revised and updated, however.

A+ and better energy classes can already be used by manufacturers on a voluntary bases and models in A+ and A++ energy efficiency classes are already available on the market.

Specific Ecodesign requirements have been also set for the power consumption in on-mode, to be applied from 20 August 2010 and 01 April 2012, and in the stand-by and off-mode.

From November 30, 2011	Energy efficiency classes: A, B, C, D, E, F, G (see below the label) or A+, A, B, C, D, E, F if manufacturers deem appropriate
From March 30, 2012	Requirements on advertisement and technical promotional material
From January 01, 2014	Energy efficiency classes: A+, A, B, C, D, E, F or A++, A+, A, B, C, D, E if manufacturers deem appropriate
From January 01, 2017	Energy efficiency classes: A++, A, B, C, D, E or A+++, A++, A+, A, B, C, D if manufacturers deem appropriate
From January 01, 2020	Energy efficiency classes: A+++, A++, A+, A, B, C, D

Energy Efficiency Class	Energy Efficiency Index
A+++	EEI < 0,10
A++	0,10 ≤ EEI < 0,16
A+	0,16 ≤ EEI < 0,23
A	0,23 ≤ EEI < 0,30
B	0,30 ≤ EEI < 0,42
C	0,42 ≤ EEI < 0,60
D	0,60 ≤ EEI < 0,80
E	0,80 ≤ EEI < 0,90
F	0,90 ≤ EEI < 1,00



6. Light sources

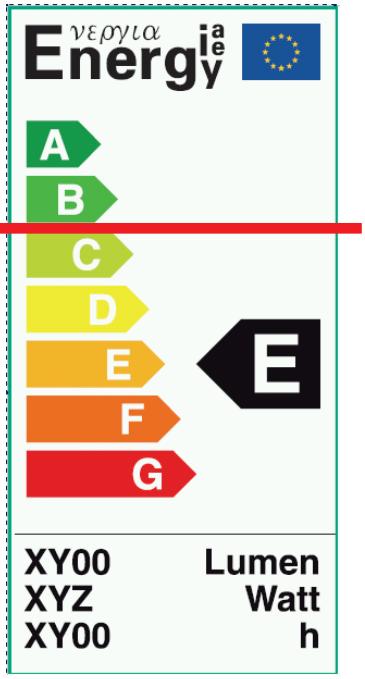
Clear incandescent light bulbs for residential use are not allowed to enter the market from September 2012. From September 2016 lamps with energy efficiency class C and below will be also not allowed to enter the EU market.

The table and energy label below relate only to non-directional light sources. A new energy label for these light sources is under preparation, introducing the A+ energy class as well.

An energy label for directional light sources is under preparation for the introduction into the EU legislation as well.

	Non-clear lamps				Clear lamps							
Date	Requirement	Incandescent	All Halogen	CFL / LED	Requirement	Incandescent / Conventional halogen				Halogen C	Halogen B	LED
						≥ 100 W	≥ 75 W	≥ 60 W	60 W >			
	None				None							
September 2009 [1]	A[2]				C for ≥ 100 W[3]		≥ E[3]	≥ E[3]	≥ E[3]			
September 2010	A[2]				C for ≥ 75 W[3]			≥ E[3]	≥ E[3]			
September 2011	A[2]				C for ≥ 60 W[3]				≥ E[3]			
September 2012	A[2]				C for all							
September 2013	Second level of functionality requirements [1]											
Review 2014	Review											
September 2016	A[2]				B / C [4]					[4]		

[1] First level of functionality requirements introduced in first stage. LEDs are exempted from all functionality requirements.
[2] Refers to lamp energy label class. Correction factors apply to certain lamps, allowing them to be B-class.
[3] Minimum requirement for all lamps: E class. F and G lamps phased out.
[4] Only special cap halogen lamps are allowed to be class C.



7. Room Air Conditioners

The EU Regulation establishes requirements for the labelling and the provision of supplementary product information for electric mains-operated air conditioners with a rated capacity of ≤ 12 kW output power for cooling, or heating, if the product has no cooling function. The 12 kW level is the generally agreed limit between small (mainly domestic) and bigger (mainly commercial) air-conditioning appliances.

The units may be air or water cooled and there are separate standards for each main type. The regulations do not apply to portable spot air-conditioners, dehumidifiers or evaporative or desiccant coolers.

The labelling requirements include:

- A-G energy labels with a new design.
- Gradual introduction of additional classes (A+ to A+++) from 2013.

The Regulation introduces two energy efficiency scales based on the primary function and on specific aspects important to consumers. As air conditioners are mainly used in part-load conditions, the efficiency testing should be changed to a seasonal efficiency measurement method (SEER), except for single and double duct air conditioners.

Room Air Conditioners

Labelling

Timetable	
January 1, 2013	energy efficiency rating from A to G, requirements for suppliers and dealers
From January 1, 2015	energy efficiency rating from A+ to F
From January 1, 2017	energy efficiency rating from A++ to E
From January 1, 2019	energy efficiency rating from A+++ to D

Ecodesign

Requirements from 1 January 2013:

SINGLE DUCT AND DOUBLE DUCT AIR CONDITIONERS

	Double duct air conditioners		Single duct air conditioner	
	EERrated	COPrated	EERrated	COPrated
GWP > 150	2,40	2,36	2,40	1,80
GWP ≤ 150	2,16	2,12	2,16	1,62

Room Air Conditioners

Labelling

Energy efficiency classes for double ducts and single ducts

Energy Efficiency Class	Double ducts		Single ducts	
	EERrated	COPrated	EERrated	COPrated
A+++	≥ 4,10	≥ 4,60	≥ 4,10	≥ 3,60
A++	3,60 ≤ EER < 4,10	4,10 ≤ COP < 4,60	3,60 ≤ EER < 4,10	3,10 ≤ COP < 3,60
A+	3,10 ≤ EER < 3,60	3,60 ≤ COP < 4,10	3,10 ≤ EER < 3,60	2,60 ≤ COP < 3,10
A	2,60 ≤ EER < 3,10	3,10 ≤ COP < 3,60	2,60 ≤ EER < 3,10	2,30 ≤ COP < 2,60
B	2,40 ≤ EER < 2,60	2,60 ≤ COP < 3,10	2,40 ≤ EER < 2,60	2,00 ≤ COP < 2,30
C	2,10 ≤ EER < 2,40	2,40 ≤ COP < 2,60	2,10 ≤ EER < 2,40	1,80 ≤ COP < 2,00
D	1,80 ≤ EER < 2,10	2,00 ≤ COP < 2,40	1,80 ≤ EER < 2,10	1,60 ≤ COP < 1,80
E	1,60 ≤ EER < 1,80	1,80 ≤ COP < 2,00	1,60 ≤ EER < 1,80	1,40 ≤ COP < 1,60
F	1,40 ≤ EER < 1,60	1,60 ≤ COP < 1,80	1,40 ≤ EER < 1,60	1,20 ≤ COP < 1,40
G	EER < 1,40	COP < 1,60	EER < 1,40	COP < 1,20

Energy efficiency classes for air conditioners, except double ducts and single ducts

Energy Efficiency Class	SEER	SCOP
A+++	SEER ≥ 8,50	SCOP ≥ 5,10
A++	6,10 ≤ SEER < 8,50	4,60 ≤ SCOP < 5,10
A+	5,60 ≤ SEER < 6,10	4,00 ≤ SCOP < 4,60
A	5,10 ≤ SEER < 5,60	3,40 ≤ SCOP < 4,00
B	4,60 ≤ SEER < 5,10	3,10 ≤ SCOP < 3,40
C	4,10 ≤ SEER < 4,60	2,80 ≤ SCOP < 3,10
D	3,60 ≤ SEER < 4,10	2,50 ≤ SCOP < 2,80
E	3,10 ≤ SEER < 3,60	2,20 ≤ SCOP < 2,50
F	2,60 ≤ SEER < 3,10	1,90 ≤ SCOP < 2,20
G	SEER < 2,60	SCOP < 1,90

Ecodesign

For air conditioners, except single duct and double duct air conditioners

	SEER	SCOP (Average heating season)
GWP > 150	3,60	3,40
GWP ≤ 150	3,24	3,06

Requirements from 1 January 2014:

For air conditioners, except single duct and double duct air conditioners

	SEER	SCOP (Average heating season)
GWP > 150 for |< 6 kW	4,60	3,80
GWP < 150 for |< 6 kW	4,14	3,42
GWP > 150 for 6–12 kW	4,30	3,80
GWP < 150 for 6–12 kW	3,87	3,42

For double duct air conditioners

	EER rated	COP rated
GWP > 150 for |< 6 kW	2,60	2,60
GWP < 150 for |< 6 kW	2,34	2,34
GWP > 150 for 6–12 kW	2,60	2,60
GWP < 150 for 6–12 kW	2,34	2,34

For single duct air conditioners

	EER rated	COP rated
GWP > 150 for |< 6 kW	2,60	2,04
GWP < 150 for |< 6 kW	2,34	1,84
GWP > 150 for 6–12 kW	2,60	2,04
GWP < 150 for 6–12 kW	2,34	1,84

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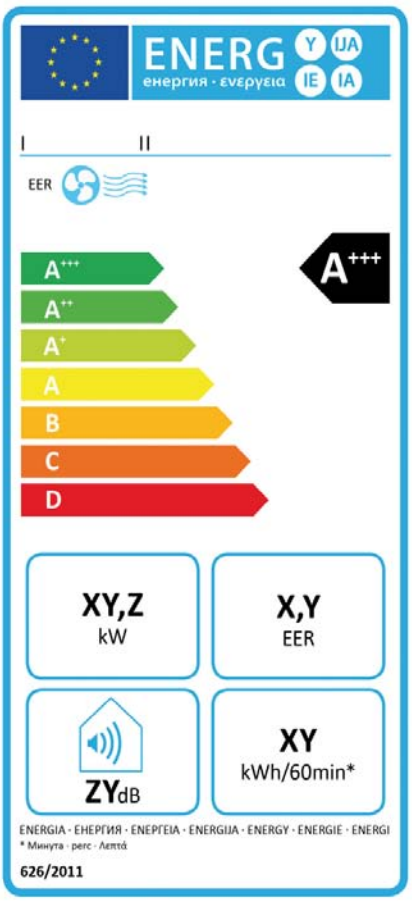
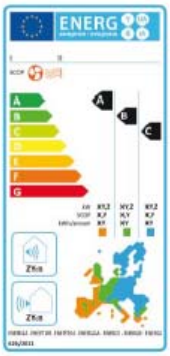
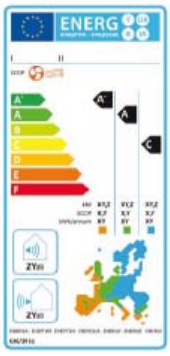
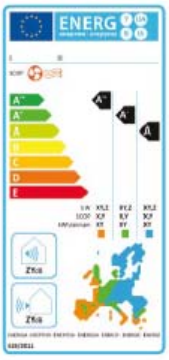
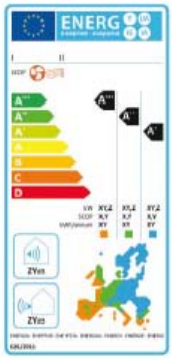
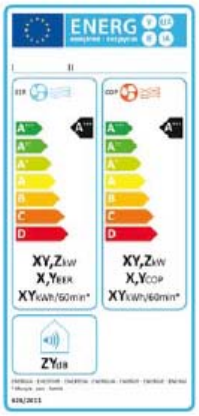
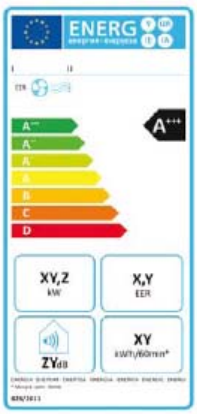
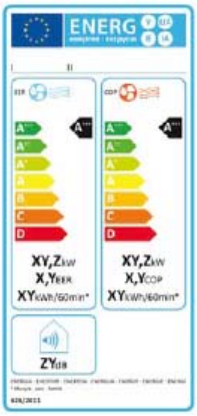
Picture: Energy label for cooling-only double duct air conditioners classified in energy efficiency classes A+++ to D



Pictures: energy labels of air conditioning units of different formats and timescales:


References and further resources

Energy labelling:

http://ec.europa.eu/energy/efficiency/labelling/labelling_en.htm

http://ec.europa.eu/energy/efficiency/labelling/energy_labelling_en.htm

http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2010:153:SOM:EN:HTML

http://www.eceee.org/Eco_design/Energy_labelling_directive

Ecodesign:

http://ec.europa.eu/energy/efficiency/ecodesign/eco_design_en.htm

http://europa.eu/legislation_summaries/other/l32037_en.htm

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0125:EN:NOT

http://www.eceee.org/Eco_design

More information about the project activities and all of its results are published on:

www.come-on-labels.eu

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www.come-on-labels.eu

Come on Labels project members – contacts

Czech Republic – project coordinator — **SEVEn**, The Energy Efficiency Center
www.svn.cz

Austria — **Austrian Energy Agency**
www.energyagency.at

Belgium — **Brussels Energy Agency**
www.curbain.be

Croatia — **ELMA Kurtalj d.o.o**
www.elma.hr

Germany — **Öko-Institut e.V., Institute for Applied Ecology**
www.oeko.de

Great Britain — **Severn Wye Energy Agency**
www.swea.co.uk

Greece — **Center for Renewable Energy Sources and Saving**
www.cres.gr

Italy — **ENEA** – Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile
www.enea.it

Latvia — **Ekodoma, Ltd**
www.ekodoma.lv

Malta — **Projects in Motion**
www.pim.com.mt

Poland — **KAPE**, Polish National Energy Conservation Agency
www.kape.gov.pl

Portugal — **QUERCUS** – Associação Nacional de Conservação da Natureza
www.ecocasa.pt

Spain — **ESCAN, S.A.**
www.escansa.com

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More information about the project activities and all of its results are published on:

www.come-on-labels.eu