



Deliverable D13 (D3.3): **ANTICSS Project** **List of product groups to be tested**

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1 About the ANTICSS project

The objective of the research project 'Anti-Circumvention of Standards for better market Surveillance (ANTICSS)' is to assess and clearly define 'circumvention' in relation to EU Ecodesign and Energy labelling legislation and relevant harmonised standards.

The analysis of circumvention will be based on collecting and learning from cases of circumvention by literature research and dedicated expert interviews, as well as analysing existing EU Ecodesign and Energy labelling legislation and standards for possible loopholes. Also the potential relation between circumvention and so called 'smart' products with specific embedded software will be addressed by the project. Alternative test procedures to better detect circumvention by testing shall be developed and through testing a certain number of appliances within the ANTICSS project, the impacts 'if' and 'how much' energy consumption and/or functional performance modifications could be ascribed to circumvention will be assessed.

Based on the results, ANTICSS will provide practical capacity building measures for key actors of market surveillance and test laboratories, support communication and collaboration platforms between major stakeholders and provide policy recommendations for policy makers and standardisation bodies to prevent future circumvention under EU Ecodesign and Energy labelling. ANTICSS project is also designed to provide reliability to manufacturers by specifying potentially vague legislation and standards which might be interpreted differently by market actors and some of them taking unfair advantages so far. By overall awareness raising on circumvention among stakeholders, ANTICSS is supporting an effective EU legislation enforcement and thus increasing acceptance and trust of market actors and civil society into the Ecodesign and Energy labelling legislation.

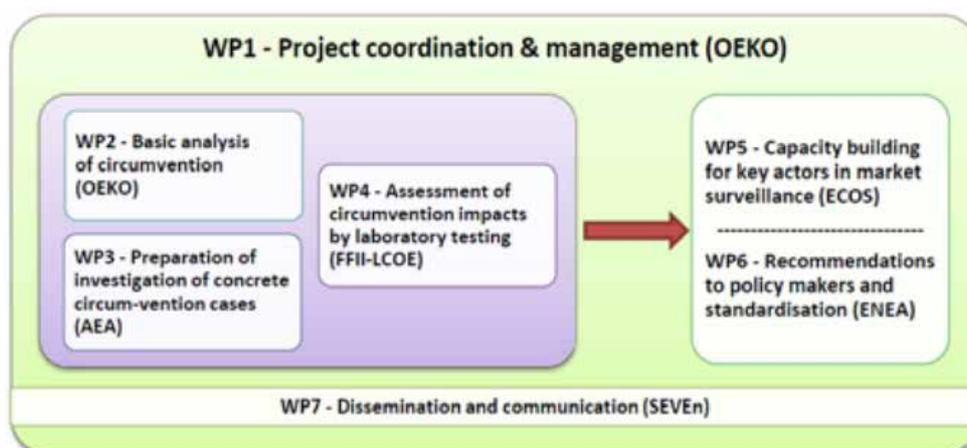


Figure 1: ANTICSS Work Package structure



2 Goal and approach of selecting product categories for testing

Background: Starting the ANTICSS project from a full list of product groups with applied EU Ecodesign and Energy labelling regulations, first a matrix has been developed with general decision criteria like market and environmental relevance, hints on circumvention, smartness of products; after that, a semi-quantitative approach has been developed with few exclusion criteria, defined selection criteria and a systematic weighting. The resulting ANTICSS scope matrix provided a list of product groups covered by Ecodesign and/or Energy labelling regulation, excluding only few product groups at this stage of the project. Excluded from the ANTICSS scope were only four product groups based on the exclusion criteria 'only voluntary agreements' (Complex Set-top Boxes, Imaging / Sound & Imaging Equipment), 'only covered by horizontal measures' (non-tertiary coffee machines), or 'no market relevance' (Simple Set-top Boxes).

Within the basic analysis (WP2) 26 cases of suspect behaviour were collected¹. After the re-assessment by the ANTICSS project team according to the final definitions, the cases were classified into the categories compliant, non-compliant, jeopardy effects or circumvention.

Stakeholder consultation (WP3) provided a total of 39 cases of suspect behaviour². After the evaluation by the ANTICSS project team according to the final definitions, they were also classified into the categories compliant, non-compliant, jeopardy effects or circumvention.

Based on this information and collected cases of identified circumvention and jeopardy effects in products, the goal of this task is to make the final selection of a maximum of ten product categories that will be further analysed by laboratory testing in WP4.

The present report explains the decision-making process as agreed and implemented by ANTICSS partners to determine the ten product types.

¹ ANTICSS partners conducted a quality check of the 26 cases received. Considering that two of the cases reported were equivalent, in total, the information received on 24 cases has been used.

² ANTICSS partners conducted a quality check of the 39 cases received to avoid double counting of cases with cases received in WP2, to disregard cases not sufficiently substantiated, to disregard cases on product categories outside the scope, etc. In total, the information received on 22 cases has been used.



3 Methodology for the selection of product categories for testing

3.1 Rationale for the selection of the methodology

In order to define the decision criteria for the selection of a maximum of ten product categories for the laboratory testing, ANTICSS partners first looked closely into the work developed previously under WP2 for determining the list of products in the scope of the project (see Deliverable D6 – D2.2³). While the final ranking that framed the product scope and the set of selection and exclusion criteria applied could have been useful at this stage for determining the product categories to be tested, it was deemed not possible in the end to build on that approach also for WP3. The reason for that is linked to the fact that the data and information related to the criteria for the product selection, such as *environmental relevance* and *market relevance*, were available only at *product Lot* level and not at *product type* level. A simple example of this could be for instance, the difficulty to estimate the primary energy savings in 2030 for freezers as the market and environmental data are provided for the whole Lot ENER 13 instead, which actually also includes other product types such as refrigerators, refrigerator-freezers, etc.

Therefore, ANTICSS project partners finally decided to shift the focus of the methodology and base the decision on the selection of the product categories for testing on the *type* of suspect behaviour cases received via the stakeholder consultations in WP2 and WP3 instead. For the first exercise under WP2, project partners developed a questionnaire and conducted an internal consultation mainly based on literature research and own experience within project partners (see Deliverable D7 - D2.3⁴). On the other hand, under WP3, Task 3.1 to 3.3, the project team launched a wider stakeholder consultation targeting market surveillance authorities (MSA), industry, consumer associations, environmental NGOs and testing organisations in order to gather additional cases.

The full methodology used for the selection is presented in section 3.2 below.

3.2 Description of the methodology

Having the complete list of energy-related products as a starting point, the ANTICSS project team implemented a semi-qualitative methodology for the selection of the maximum of ten product categories to be tested in the laboratories.

³ https://www.anti-circumvention.eu/storage/app/media/uploaded-files/AntiCSS_Scope_Report_2019-1.pdf

⁴ https://www.anti-circumvention.eu/storage/app/media/uploaded-files/ANTICSS_Definition_circumvention_Preliminary_Long.pdf

The full list of categories has been crossed with exclusion and selection criteria in order to narrow down the list to the ten product categories to be selected for testing.

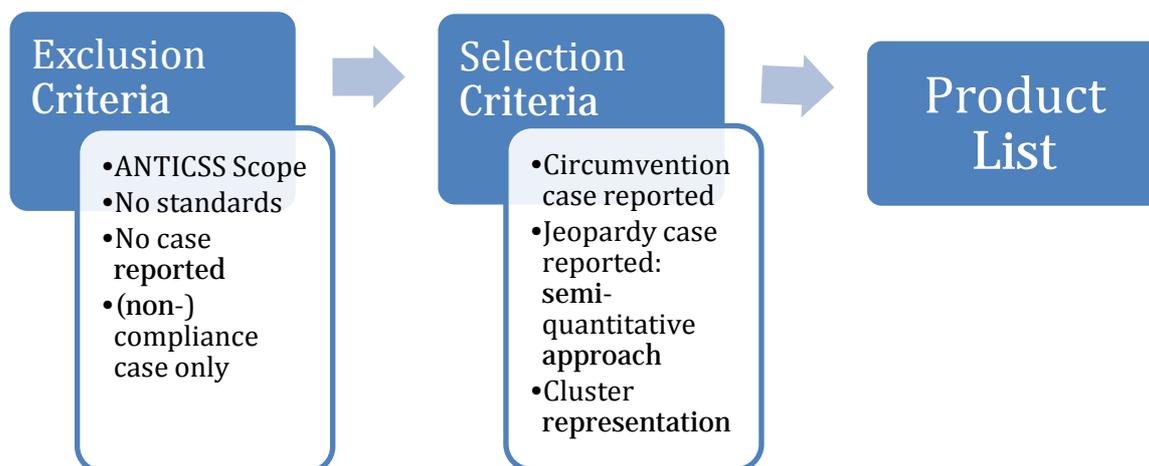


Figure 2: Methodology for the selection of products to be tested

3.2.1 Exclusion criteria

After discussions within the core team of WP3 four main exclusion criteria were considered to be unambiguous and strong arguments to justify the exclusion of product categories from the further analysis in the laboratory. The following four cut-off criteria are applied:

- **1st level exclusion criterion: Product categories excluded from ANTICSS scope**

As already mentioned, ANTICSS partners worked on the selection of the product Lots to be included in the scope of the project within WP2. For that initial screening two exclusion criteria were applied: product groups which are not covered by product specific delegated or implementing regulation on Ecodesign or energy labelling, and product groups which no longer have market relevance (i.e. sales from 2020 onwards = zero).

Project partners decided that those exclusion criteria should be kept consistently throughout the project.



- **2nd level exclusion criterion: Product categories lacking harmonised standards or transitional methods**

Acknowledging the fact that the objective of the laboratory testing of the ten product types selected would be to assess the impacts of circumvention and the design of alternative testing procedures, ANTICSS partners deemed essential to focus the testing efforts on product types for which there is a measurement method, in the form of a harmonised standard or a transitional method. Regardless the product type to be tested, laboratories testing a product within ANTICSS need to have a reference protocol to conduct the testing, to make the calculations accordingly and to potentially propose alternative methods to the set procedures. Hence, product categories for which there is no harmonised standard nor a transitional method will be disregarded.

- **3rd level exclusion criterion: Product categories not reported as a case within WP2 or WP3**

As already mentioned, the main selection criteria is linked to the stakeholder input that ANTICSS project collected through the consultations run in WP2 and WP3. Although the sample of questionnaires received is, of course, limited to the context of the project, ANTICSS partners decided to prioritise those product categories for which cases had been reported. Therefore, should a product type not have been reported as a “suspect behaviour” case it will be disregarded for testing purposes.

See Annex I. Table 4. *Overview of cases collected in WP2 and WP3.*

- **4th level exclusion criterion: Product categories reported only as “compliant” or “non-compliant” cases within WP2 or WP3**

The stakeholder input that the project collected via the questionnaires was later assessed in detail during several web meetings and at the project progress meeting in Lisbon on 22-23 May 2019. The project partners analysed all the cases received and after ample discussion, agreed on the categorisation of the suspect behaviour cases into the following ANTICSS definitions (see Deliverable D8 – D3.1):

- Circumvention,
- Jeopardy effects,
- Compliant,
- Non-compliant.

Given the nature of the project, the team decided to focus on those cases classified as “circumvention” and “jeopardy effects”. Consequently, product types for which only “compliant” or “non-compliant” cases were reported have been excluded.

See Annex I. Table 4. *Overview of cases collected in WP2 and WP3.*



3.2.2 Selection criteria

Once exclusion criteria were applied, the product categories still candidate for testing were subjected to further selection criteria until a list of maximum ten product categories remained.

As already indicated, the main source of information for the selection criteria used were the collected stakeholder questionnaires identifying cases of hints on circumvention run two times, in WP2 and WP3.

See Annex I. Table 4. *Overview of cases collected in WP2 and WP3.*

3.2.2.1 Product categories with cases classified as “circumvention”

Partners deemed essential to select product groups where it is likely to find circumvention. It was therefore decided that all the circumvention cases reported via the questionnaires provided an indication worth further analysis in the laboratories.

3.2.2.2 Product categories with cases are classified as “jeopardy effects”

The team developed a second criterion applicable to categories for which jeopardy effect cases were received. This means that while the description of these cases was not considered as circumvention on the first place, further investigation may determine if the hint for circumvention can be substantiated and finally redefined as circumvention, or on the contrary, if the case ends up being other effects, such as loopholes in the standards or the regulation, etc. In order to rank these product categories a semi-quantitative approach was developed which scored simultaneously three parameters:

- Number of jeopardy cases reported: the number of cases were counted per product category and normalised as follows:

Number of jeopardy effect cases	Jeopardy score
X	X = 3-4 cases à 5 points X = 1-2 cases à 3 points

- Testing capability within the ANTICSS consortium: data on the testing capabilities within the project partners was also collected in the decision matrix in WP2. Product groups with and without testing capabilities within the consortium were scored as follows, prioritising internal knowledge and experience from the partner laboratories:

Lab testing capacity within ANTICSS consortium
Yes = 5 points
No = 3 points

- Consumer relevance: consumer trust on the Ecodesign framework and the Energy Label are key to the success of the policies. Therefore, this criterion describes the potential impact of the suspect behaviour encountered in the product category on consumers' trust or public/consumer awareness. The higher the potential impact, the higher is the possible damage a single case might cause to the Ecodesign or Energy Labelling regulation as a whole. The team considered to use the existence of an Energy Label for the product as a multiplying factor.

Energy Label multiplying factor
Product has an Energy Label = 5 points
Product does not have an Energy Label = 3 points

The total scoring for each of the product types for which jeopardy effect cases had been reported summed up the normalised value for the number of jeopardy cases and the normalised testing capacity, and that sub score was multiplied by the Energy label factor.

Table 1. Scoring of product categories with 'jeopardy effect' cases

#Jeopardy effect cases	A Jeopardy score	B Lab testing capacity	Sub score	C Energy Label multiplying factor	TOTAL SCORE
X	X = 3-4 cases à 5 points X = 1-2 cases à 3 points	Yes = 5 points No = 3 points	A+B	Product has EL = 5 points Product no EL = 3 points	= (A+B) x C



3.2.2.3 Product category cluster representation

For the selection of the final ten product categories, it was deemed appropriate that product category cluster representation would also constitute a criterion. The product category clusters identified for the complete list of the energy-related products were the following:

- Electronic equipment
- Heating
- Cooling
- White goods
- Lighting
- Industrial applications

The rationale of this criterion was that since product categories of the same cluster have similarities in terms of product behavior, way of operation or type of fuel used, testing product categories from different clusters would allow for a better understanding of variable circumvention practices.



4 Implementation of the methodology

4.1 Exclusion criteria

Based on the methodology described above, the following exclusion criteria were applied (see Annex I. Table 5. *Application of the exclusion and selection criteria to the complete energy-related products list*):

- **1st level exclusion criterion: Product categories excluded from ANTICSS scope**

The following product categories are not covered by product specific Ecodesign or Energy Labelling regulation and were therefore excluded from the final selection:

- ENER 18: Complex set-top boxes (voluntary agreement only);
- ENER 4: Imaging equipment (voluntary agreement only);
- ENER 3: Sound and imaging equipment (voluntary agreement only); and
- ENER 25: Non-tertiary coffee machines (only covered by horizontal implementing regulation on standby and off mode electric power consumption).

The following product category no longer has market relevance any longer (i.e. sales from 2020 onwards = zero) and was therefore also excluded from the final selection:

- Simple Set-Top-Boxes

- **2nd level exclusion criterion: Product categories lacking harmonised standards or transitional methods**

The following product categories lack a measurement method, either in the form of a harmonised standard or a transitional method, and were therefore excluded from the final selection:

- ENER 11: Water pumps
- ENER 11: Fans

- **3rd level exclusion criterion: Product categories not reported as a case within WP2 or WP3**

For the following product categories no suspect behaviour case were reported via the questionnaires in WP2 or WP3 and were therefore excluded from the final selection:



- ENER 11: Water pumps
 - ENER 11: Fans
 - ENTR 1: Professional refrigerated cabinets
 - ENER 21: Air heating and cooling products
 - ENTR 2: Transformers
 - ENER 15: Solid fuel boilers
 - ENER 7 a): Battery chargers
 - ENER 7 b): External power supplies
 - ENER 3: PCs
 - ENER 14 b) Domestic washer-drier
 - ENER 2 a) Water heaters
 - ENER 22 b) Hobs
 - ENER 22 c) Range hoods
 - ENER 10 b) Comfort fans
 - ENER 8, 9, 19 a): Office / Street lighting
-
- **4th level exclusion criterion: Product categories reported only as “compliant” or “not compliant” cases within WP2 or WP3**

For the following product categories only cases under the categories “compliant” or “not compliant” were reported, and were therefore excluded from the final selection:

- ENER 8, 9, 19 b): Domestic lighting part I non-directional lamps
- ENER 8, 9, 19 c): Domestic lighting part II directional lamps
- ENER 2 b): Hot water storage tanks
- ENER 11: Circulators
- ENER 6+26: Standby and off-mode losses, networked standby
- ENER 20 a): Local space heaters
- ENTR 6: Air-conditioning and ventilation systems
- - Tyres.

4.2 Selection criteria

The following subsections describe in detail the results of the implementation of the proposed selection criteria applied to evaluate the remaining product types.

See also Table 5. *Application of the exclusion and selection criteria to the complete energy-related products list* in Annex I.

4.2.1 Product categories for which cases are classified as “circumvention”

The first selection criterion applied was the existence of circumvention cases reported; meaning that the product categories with collected circumvention cases were selected. As circumvention cases were reported for five product categories, all those were selected for testing under WP4, and are the following:

- ENER 5: Televisions
- ENER 20: Solid fuel local space heaters
- ENER 14: Domestic dishwashers
- ENER 22 a): Domestic ovens
- ENER 16: Household tumble driers

4.2.2 Product categories for which cases are classified as “jeopardy effects”

Due to the fact that only five product categories were selected after applying the circumvention criteria, the criterion for the product categories for which jeopardy effect cases had been reported was applied via the scoring of three parameters: number of cases, testing capability and energy label, as follows:

Table 2. Result of the scoring of product categories with ‘jeopardy effect’ cases

		Number of Jeopardy effect cases	Jeopardy score (3-4 cases = 5 1-2 cases = 3)	Lab testing capacity (Y = 5, N = 3)	Sub score	Energy Label multiplying factor (Y=5, N=3)	TOTAL SCORE
ENER 13 a)	Domestic refrigerators	3	5	5	10	5	50
ENER 13 b)	Domestic freezers, fridge-freezers	4	5	5	10	5	50
ENER 1	Space heaters	2	3	5	8	5	40
ENER 10 a)	Room air conditioning	2	3	5	8	5	40
ENER 14 a)	Domestic washing machines	2	3	5	8	5	40
ENER 17	Vacuum cleaners	1	3	5	8	3	24
ENER 11	Motors	1	3	3	6	3	18



The following five additional product categories were selected for the laboratory testing:

- ENER 13 a): Domestic refrigerators
- ENER 13 b): Domestic freezers, fridge-freezers
- ENER 1: Space heaters
- ENER 10 a): Room air conditioning
- ENER 14 a): Domestic washing machines

4.2.3 Product category cluster representation

The ten product categories selected cover 5 of the 7 aforementioned clusters, this criterion was deemed fulfilled.

4.3 Further criteria not applied

When ANTICSS partners delimited the product scope of the project in WP2, some criteria were identified as worth to be considered for the selection of the ten product types under WP3. The following subsections explain the outcome of the discussions on whether or not these criteria should be part of the selection process.

- **Covered by other research**

In the context of WP2 it was discussed that product groups already covered by other research projects are already in focus and possible circumvention might already be discovered. In contrast, it might be interesting to select product groups that have not yet been looked at by independent research. Indeed, many product groups have been or are covered by other EU research projects that deal or dealt with non-compliance. However, as discussed at the project progress meeting in Lisbon on 22-23 May 2019, the team agreed that as none of those other projects are circumvention-specific and as the evaluation of this aspect is ambivalent this criteria would be disregarded.

- **Tested by MSA**

Similarly, in WP2 it was also discussed on whether the fact that a MSA has already tested a product category should be accounted for as an exclusion criterion. The counter-argument is that product categories that have not been tested yet might be interesting to be looked at in detail. After the team re-discussed this criterion for WP3, it was apparent that in no case any MSA had conducted in depth assessment concerning circumvention aspects. Hence, as the evaluation of this aspect is ambivalent, it was agreed not to consider it as selection criterion. It is worth noting that MSAs' experience with the different product categories will feed into WP4, WP5 and WP6.



- **Replicability**

As discussed already in WP2, the easier a method of circumvention can be replicated, the higher is the probability that it is applied in a high share of products leading to higher losses in prospected energy savings. Information on this criterion was collected during the survey in WP3, however the input received on this specific aspect was not consistent enough to draw any conclusions. Therefore, the ANTICSS partners decided to disregard this selection criteria, but to most likely use the limited information received to feed into WP4, WP5 and WP6.

- **Shortcoming in Regulation and/or standard**

Within Task 2.5 ANTICSS partners assessed possible weaknesses derived from the regulatory texts or the standards in order to identify areas for improvement. However, the analysis was not uniform across the product categories as the assessment was conducted differently depending on the priority of the products as ranked within WP2. Therefore, although the outcome of the analysis of the regulation and harmonised standards is truly valuable, it could not be taken into consideration as a selection criteria as it is not comparable among product types. However, the results of the analysis will be key in feeding WP4, 5 and 6.



5 Results: product categories to be tested in laboratories

The following table shows the final result after the application of the exclusion criteria and of the evaluation of the remaining product categories through the selection criteria as described in the previous sections. Task 3.5 has led to the selection of the ten product categories for laboratory testing in WP4 as follows:

Table 3. Result of Task 3.5: Selection of ten product categories for laboratory testing⁵

Lot	Product category selected for the laboratory testing
ENER 1	Space heaters
ENER 5	Televisions
ENER 10 a)	Room air conditioning
ENER 13 a)	Domestic refrigerators
ENER 13 b)	Domestic freezers, refrigerators-freezers
ENER 14	Domestic dishwashers
ENER 14 a)	Domestic washing machines
ENER 16	Household tumble driers
ENER 20 b)	Solid fuel local space heaters
ENER 22 a)	Domestic ovens

⁵ Note that the order of the products in the table does not represent any ranking. The order strictly follows the numbering of the Lot the different product categories correspond to.



6 Annex I. Overview tables

Table 4. Overview of cases collected in WP2 and WP3

Lot abbr.	Product category	Questionnaires in WP2				Questionnaires in WP3			
		CV	Jeop	Compl	Not compl	CV	Jeop	Compl	Not compl
ENER 8, 9, 19	a) Office / Street lighting								
	b) Domestic lighting part I non-directional lamps				2				
	c) Domestic lighting part II directional lamps								
ENER 5	Televisions	1	1			2			
ENER 13	Domestic refrigerators		2		1		1	1	
ENER 13	Domestic freezers, refrigerator-freezer		4		1				
ENER 1	Space heaters and combination heaters		1			1	1	1	
ENER 10	a) Room air conditioning		1	1		1	1		
ENER 10	b) Comfort fans								
ENER 11	Electric motors		1					1	
ENER 20	a) Local space heaters						1		
	b) Solid fuel local space heaters	1							
ENER 14	Domestic dishwashers	2				1	1	1	
ENER 16	Household tumble driers	1							
ENTR 1	Professional refrigerated storage cabinets								
ENER 22	a) Domestic ovens		1			1	1		
ENER 22	b) Hobs								
ENER 22	c) Range hoods								
ENER 17	Vacuum cleaners		1						
ENER 2	a) Water heaters								
ENER 2	b) Hot water storage tanks						1		
-	Tyres							1	
ENER 21	Air heating and cooling products								



Lot abbr.	Product category	Questionnaires in WP2				Questionnaires in WP3			
		CV	Jeop	Compl	Not compl	CV	Jeop	Compl	Not compl
ENTR 6	Air-conditioning and ventilation systems								1
ENER 11	Fans								
ENER 14	a) Domestic washing machines		2						
	b) Domestic washer-dryer								
ENTR 2	Transformers								
ENER 11	Circulators							1	
ENER 11	Water pumps								
ENER 15	Solid fuel boilers								
ENER 6 + 26	Standby and off-mode losses, networked standby							1	
ENER 7	a) Battery chargers								
ENER 7	b) External power supplies								
ENER 3	PCs								



Table 5. Application of the exclusion and selection criteria to the complete energy-related products list

Cluster	Lot abbr.	Product category
Electronic equipment	ENER 7	a) Battery chargers
Electronic equipment	ENER 7	b) External power supplies
Electronic equipment	ENER 18	Complex set-top boxes
Electronic equipment	ENER 5	Televisions
Electronic equipment	ENER 4	Imaging equipment
Electronic equipment	ENER 3	PCs
Electronic equipment	NA	Simple Set-Top Boxes
Electronic equipment	ENTR 3	Sound and imaging equipment
Energy-related products	-	Tyres
Heating / Ventilation / Air conditioning	ENER 20	a) Local space heaters
Heating / Ventilation / Air conditioning	ENER 20	b) Solid fuel local space heaters
Heating / Ventilation / Air conditioning	ENER 21	Air heating and cooling products
Heating / Ventilation / Air conditioning	ENTR 6	Air-conditioning and ventilation systems
Heating / Ventilation / Air conditioning	ENER 1	Space heaters and combination heaters
Heating / Ventilation / Air conditioning	ENER 10	a) Room air conditioning
Heating / Ventilation / Air conditioning	ENER 10	b) Comfort fans
Heating / Ventilation / Air conditioning	ENER 15	Solid fuel boilers
Heating / Ventilation / Air conditioning	ENER 2	a) Water heaters
Heating / Ventilation / Air conditioning	ENER 2	b) Hot water storage tanks
Horizontal	ENER 6 + 26	Standby and off-mode losses, networked standby
Industrial applications	ENER 11	Circulators
Industrial applications	ENER 11	Electric motors
Industrial applications	ENER 11	Fans



Cluster	Lot abbr.	Product category
Industrial applications	ENTR 2	Transformers
Industrial applications	ENER 11	Water pumps
Lighting	ENER 8,9, 19	a) Office / Street lighting
Lighting	ENER 8,9, 19	b) Domestic lighting part I non-directional lamps
Lighting	ENER 8,9, 19	c) Domestic lighting part II directional lamps
White goods	ENER 14	a) Domestic washing machines
White goods	ENER 14	b) Domestic washer-dryer
White goods	ENER 14	Domestic dishwashers
White goods	ENER 22	a) Domestic ovens
White goods	ENER 22	b) Hobs
White goods	ENER 22	c) Range hoods
White goods	ENER 13	a) Domestic refrigerators
White goods	ENER 13	b) Domestic freezers, refrigerators-freezers
White goods	ENER 16	Household tumble driers
White goods	ENER 25	Non-tertiary coffee machines
White goods	ENTR 1	Professional refrigerated storage cabinets
White goods	ENER 17	Vacuum cleaners

Note:

Implementation of the exclusion criteria

Implementation of the selection criteria

Not selected



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Italy: CCIAA Mi - Camera di commercio industria artigianato agricoltura

Spain: FFII – LCOE - Fundacion para el fomento de la innovacion industrial

Spain: CM - Comunidad de Madrid

Czech Republic: SEVEN - SEVEN, the Energy Efficiency Center, z.u.

Czech Republic: SEIA - Státní energetická inspekce

EU / Belgium: ECOS - European Environmental Citizens Organisation for Standardisation

Belgium: BHTC - Service public federal sante publique, securite de la chaine alimentaire et environnement

Germany: GRS - Regierung von Schwaben – Gewerbeaufsichtsamt

Germany: UBONN - Rheinische Friedrich-Wilhelms-Universität Bonn

Austria: BMWFV - Bundesministerium für Wissenschaft, Forschung und Wirtschaft

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