

# **Come On Labels**

## **Common appliance policy – All for one, One for all**

### **– Energy Labels**

Contract N°: **IEE/09/628/SI2.558219**

## **APPLIANCE TESTING**

### **Summary list of tests results carried out on household appliances**

**(Work Package 3 - Deliverable 3.5)**

**2<sup>nd</sup> edition: May 2012**

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NOTE: according to international standards dealing with quantities and units, the numbers in this study are written according to the following rules:

- the comma “,” is the separator between the integer and the decimal part of a number
- numbers with more than three digits are divided by a blank in groups of three digits
- in case of monetary values the numbers are divided by a dot in groups of three digits

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.

More information about the project results are published on: [www.come-on-labels.eu](http://www.come-on-labels.eu)

## 1. INTRODUCTION

Energy labels are a crucial driver for market transformation, orienting consumers' choice towards more energy efficient appliances and thus realizing the potential of available technologies.

Unfortunately, not all EU Member States apply effective actions for controlling the correct labelling implementation. Without a concerted effort the same is likely to happen for the forthcoming eco-design and energy labelling implementing measures for energy using products.

The Come On Labels project therefore seeks to collect information about product testing, undertaken in order to verify energy consumption related information on the product energy labels. This information is shared by the project partners in 13 European countries with stakeholders, such as national surveillance authorities, manufacturer and retailer representatives, consumer organisations, media, etc.

The main goal of this Deliverable 3.5 is to increase European-wide implementation and control of energy labelling and eco-design implementing measures for appliances by:

- giving concrete guidance to EU and National Authorities for an increasingly effective labelling implementation;
- setting a largely shared procedure for the verification of the manufacturers' labelling declaration including a methodology for laboratories accreditation and models selection;
- circulating results of the European testing results on household appliances;
- contributing to increasing the attention of the National Authorities through a better awareness of the impact of the energy labelling on the national energy efficiency.

This project document, focused on the summary of available information about product testing, is being published three times during the Come On Labels project duration (12/2010 – 5/2013), and this is its second edition.

Based on the project consortium agreement, the first edition focused on the results of the ATLETE project ([www.atlete.eu](http://www.atlete.eu)), which undertook full energy label compliance testing for 82 randomly selected refrigerating appliance models. The document is available in 10 languages here:

<http://www.come-on-labels.eu/appliance-testing/energy-consumption>

This document represents the second issue of the Deliverable of the Come On Labels project, prepared after the first issue published on June 2011 that was concentrating on the testing results for refrigerating appliances of the ATLETE project, the largest European project on testing products towards the energy label compliance run in the year 2009-2011.



Due to the lack of publicly available test results on the verification of specific models in the EU this document concentrates firstly on the overall outcome of the market surveillance action performed in UK in 2010-2011 and in Australia in 2011 and then describes the three new IEE co-funded projects on market surveillance and compliance verification: ATLETE II, ECOPLIANT and PremiumLight projects, which are starting in the year 2012.

## 2. VERIFICATION TESTS ON HOUSEHOLD APPLIANCES

### 2.1 EU results: UK case studies from 2010-2011

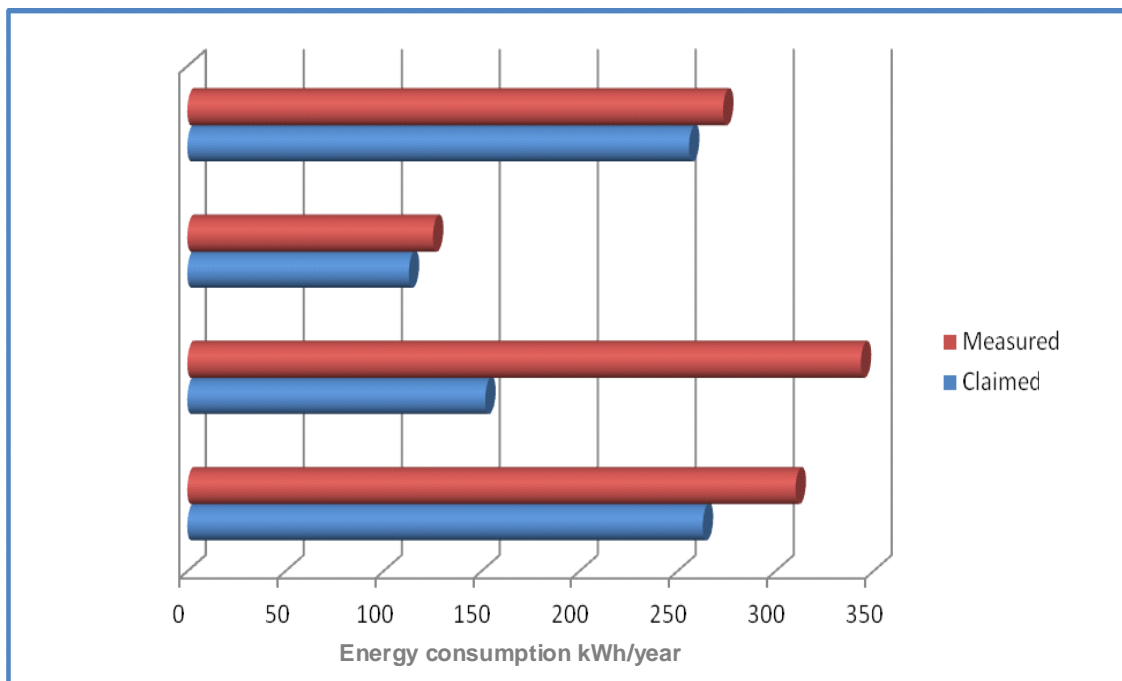
The National Measurement Office (NMO) tested refrigerators, fridge freezers and freezers across a broad spectrum of specifications for compliance against the EC regulation 94/2/EC for energy labelling accuracy and also EC 643/2009 for allowed energy use for household appliances.

#### a) Step 1 verification results on 12 refrigerating appliance models

Twelve models were purchased from on-line and high street retailers and sent to an independent accredited test house for examination. Of the twelve appliances tested, four were subject to further testing to verify non-compliance. The four failed with a range of results requiring a range of investigation, enforcement action and sanctions. In the worst case, the test report identified the percentage difference between the measured and claimed energy consumption was over 120%, this would be the equivalent of claiming to be an A rating when in-fact the test results suggested a G rating.

Figure 1 shows the differential between claimed energy and measured energy for the four products that triggered a requirement to test 3 further units in each case to fully determine compliance levels.

Figure 1: Difference between the declared and the measured energy consumption of refrigerating appliances in UK



The analysis has highlighted higher levels of potential non-compliance of specific cold appliance types. For example a higher proportion of chest freezer results required further activity than some other cold appliance types.

The project also identified a range of variances in declared volume due to interpretations in the standard. The declared volume has a direct influence on the resultant energy efficiency indices which has led to a follow up project. Several of the original issues identified under testing were resolved through cooperative engagements with the companies concerned.

#### **b) Chest freezer Ice King DM450**

The NMO has completed an investigation into an offence relating to the mislabelling of chest freezers in relation to energy ratings. John Gillman & Sons (Electrical) Ltd, the company found to be supplying these products, were issued a formal caution after admitting to the offence.

As part of the 2010 market surveillance programme an Ice King DM450 chest freezer was purchased and tested in accordance with the procedure defined in the EU legislation and the harmonised standards. When the appliance did not reach the required testing conditions, three further units were sampled as required in the test procedures. The freezer were declared to consume 263kWh/year, corresponding to an A+ energy efficiency class, however, testing measured an average of 310 kWh/year, 47 kWh/year higher or 17,87%.

The Ice King brand is solely owned in the UK by John Gillman and Sons (Electrical) Ltd. The appliances were manufactured in China, with a Danish company acting as an intermediary in the supply chain. The Danish business took responsibility for testing. No additional checks were carried out in the UK by the company.

On the NMO's first contact with the company the DM450 freezers were withdrawn from the market and held in quarantine. Over the following months the NMO and the company worked together towards compliance. No further DM450 freezers were sold and the business cancelled all further orders with their suppliers in Denmark and China, replacing them with new manufacturers of Ice King branded freezers.

#### **2.2 EU results: Spain tests in 2008-2011**

In Spain IDAE, the Institute for the Diversification and Saving of Energy, manages a national database efficient domestic appliances including the models eligible for the governmental rebate scheme.

Compliance verification actions on the declared labelling parameters were run on these models according to the EU legislation and the relevant harmonised standards. IDAE acquires from the manufacturer a sample of the product to be tested that is sent to LCOE (the Official Central Laboratory). In general, models selection is based on a higher probability of non-compliance.

In Table 1 a brief summary of the test results for the period 2008-2011 is presented. It is worth noting that since only one unit of each model has been tested no final conclusions about the compliance with the labelling declaration can be drawn from the test results.



Table 1: Energy labelling verification tests in Spain in 2008-2011

Appliance	years	Number of models	Compliant models	Non-compliant models	Parameters suspected for non-compliance and notes
Ovens	2008-2011	5	5	--	--
Refrigerator-freezers	2008-2011	22 (3 pending)	4	15	Storage volume
Freezers	2011	1	-	1	Storage volume
Washing machines	2009-2011	5	2	3	Water consumption and washing programmes declared by manufacturer does not correspond to the normal use.
Washer-dryers	2011	1	--	1	Water consumption and washing programmes declared by manufacturer does not correspond to the normal use.
Dishwashers	2011	2 (1 pending)	1	--	Water consumption and washing programmes declared by manufacturer does not correspond to the normal use.

### 2.3 Australia 2011 test results and updates

In the first of regular updates on the results of check tests, E3 - Equipment Energy Efficiency Programme in Australia reported that 92% of the 75 products check tested in the first 6 months of 2011 were judged by regulators to comply with energy regulations. Compared to results of tests conducted from 2004/5 to 2010, the rate for air conditioners rose by nearly 20% and overall, there was an 8% improvement. The tests in the first half of 2011 were dispersed amongst 57 individual brands. The following brands supplied models deemed to be non-compliant:

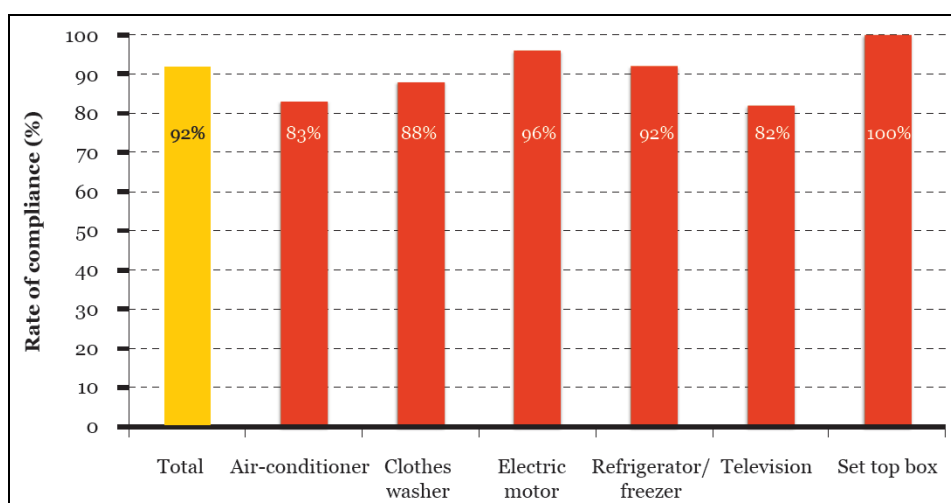
- ECLIPSE (air-conditioner)
- LG (refrigerator/Freezer)
- PALSONIC (television)
- PANGOO (television)
- SCORPION ELECTRIC MOTOR (electric motor)
- SPEED QUEEN (washing machine).

Energy performance information supplied for registration purposes for the 75 models tested was based on test reports provided by 52 test laboratories spread across 14 countries. The following industry laboratories supported the claims for the models deemed to be non-compliant:

- Techtop Shanghai Top Motor Co. Ltd (CN)
- Midea Testing Centre. (CN).

A further four independent laboratories also supported the claims for models deemed to be non-compliant and E3 will be bringing this to the attention of their relevant accreditation bodies.

Figure2 : Compliance rates for check tested products, January-June 2011



In the last quarter 2011, E3 check testing discovered three products that weren't meeting claimed efficiency requirements; registration for these products was cancelled (see Table 2).



Table 2: Product registration cancellations in the last quarter 2011 in Australia

Product Type	Brand	Model	Cancellation date
Commercial Refrigerator	Sandenintercool	SSO-700SAX	5 Oct 2011
Clothes Washer	Heller	AWM 700	10 Oct 2011
Air Conditioner	E.E. Green	EEG-50-01	30 Nov 2011

In November 2011 E3 report “Verification Testing Selection Criteria. Criteria for conducting verification testing under the Equipment Energy Efficiency Program” was delivered by Australian, State and Territory and New Zealand Governments. The document presented recommendations for changes to the existing selection criteria. It is worth noting that for the first time the issue of the certification laboratories capability is considered: in fact test laboratories that have no experience within the E3 program, or have a poor track record, will be considered a risk factor and registrations supported by these labs may be closely scrutinised.

### 3. NEW PROJECTS FOR A BETTER MARKET SURVEILLANCE OF HOUSEHOLD APPLIANCES

Three new projects under the 2011 Call of the Intelligent Energy Europe Programme will address the market surveillance issue, the ATLETE II, the ECOPLIANT and the PremiumLight projects. For all three projects the negotiation has been successfully concluded and they start in spring 2012.

#### 3.1 The ATLETE II project


Energy labels and ecodesign requirements are crucial drivers for market transformation of end-uses, orienting consumers' choice towards more efficient appliances and phasing-out the least efficient ones. But consumers should be sure that the products found on the market comply *inter alia* with the energy efficiency legislative provisions.

This new project (see Figure 3 for a brief description) will carry out, for the first time in the EU, the laboratory testing of a product covered by the new energy labelling scheme.

The goals of ATLETE II project are:

- to check the pan-EU compliance of **washing machines** to the energy labelling and eco-design requirements based on a new measurement method and to improve the capability of testing laboratories in using this new harmonised standard,
- while contemporarily support the co-operation among national Authorities for an effective market control by sharing and discussing test results and experiences.

Figure 3: Summary of the IEE-ATLETE II project

 <b>Appliance Testing for Washing Machines Energy Label and Ecodesign Evaluation (ATLETE II)</b>	
<b>Project brief</b>	
Key action:	Equipment and products
Status:	Under negotiation
Coordinator:	Institute for Studies of the Integration of Systems
Partners:	Institute for Studies of the Integration of Systems (ISIS), Italy
Website:	<a href="http://www">http://www</a> .
Benefits:	ATLETE II will check the pan-EU compliance of washing machines to the energy labelling and eco-design requirements using the new measurement method and will improve the capability of testing laboratories in using the new harmonised standard.
Keywords:	Market surveillance, Washing machines, Energy label, Eco-design Directive, Appliance testing, Energy-using products, Market transformation
Duration:	01/06/2012 - 02/06/2015
Budget:	0.0
Contract number:	IEE-11-022

ATLETE II will build upon experience and procedures developed within the previous ATLETE project on the compliance verification for refrigerating appliances, to be adapted to the second most important appliance installed in European household and

validated through a field word. Expected results are:

- Identification examples of effective enforcement of existing labelling/ecodesign legislation and national market surveillance
- Analysis of feasibility and affordability of verification compliance testing for Energy labelling and Eco-design requirements
- Upgrade and sharing of an effective procedure for the verification of the manufacturers' labelling/eco-design declaration including a methodology for the selection of laboratories and appliance models selection
- Provision to the European Commission and Member States of results of pan-European testing on a large number of the second most important household appliance: washing machines
- Information towards national Market Surveillance Authorities in case of non-compliance, as well as of compliance, of each tested product model.

### 3.2 *The ECOPLIANT project*

The objective of the ECOPLIANT project, co-funded by the Intelligent Energy Europe programme, is to help deliver the intended economic and environmental benefits of the ecodesign Directive 2009/125/EC by strengthening market surveillance and so increasing compliance with ecodesign implementing measures.

ECOPLIANT will achieve this by establishing systems to coordinate, in the most cost-effective manner, the monitoring, verification and enforcement of eco-design requirements across the European Single Market; and by increasing knowledge and experience of best practice amongst Market Surveillance Authorities.

The project (see Figure 4 for a summary) will enhance the functioning of the single market by ensuring that eco-design requirements are applied consistently and effectively across Member States. The starting date is 1 May 2012.

Figure 4: Summary of the IEE-ECOPLIANT project

		<b>European Eco-design Compliance Project (ECOPLIANT)</b>	
<b>Project brief</b>			
Key action:	Equipment and products		
Status:	Under negotiation		
Coordinator:	Department of Environment, Food and Rural Affairs		
Partners:	Department of Environment, Food and Rural Affairs (DEFRA), United Kingdom		
Website:	http://www.		
Benefits:	The results from this action will be used to create a framework for a coordinated programme for European market surveillance for eco-design. The consortium will work together with other MSAs across the EEA and with an advisory group of business, consumer organisations and environmental NGOs.		
Keywords:	Market surveillance, Monitoring enforcement and verification, Compliance; Energy-using products, Eco-design directive, Energy efficiency		
Duration:	01/06/2012 - 02/04/2015		
Budget:	0.0		
Contract number:	IEE-11-030		

This will help protect compliant businesses by eliminating unfair competition from non-compliant goods. It will similarly help to ensure that consumers, who purchase energy efficient products, can be confident that these products live up to the energy efficiency claims of the manufacturer.

Expected results are:

- adoption by Member States of best practices on how to conduct market surveillance most effectively in the Member States
- greater compliance due to increased market surveillance of products in the EEA with the implementing measures of the eco-design Directive
- increased awareness of market surveillance by industry and amongst consumers.

### 3.3 The PremiumLight project

The central objective of the PremiumLight project (see Figure 5 for a summary), cofunded by the Intelligent Energy Europe programme, is to facilitate the transition to efficient high quality lighting solutions in households thereby supporting the new legal instruments at EU level in a synergetic way.

Figure 5: Summary of the IEE-PremiumLight project

 <b>Top quality energy efficient lighting for the domestic sector (PREMIUMLIGHT)</b>	
<b>PROJECT BRIEF</b>	
<b>Key action:</b>	Equipment and products
<b>Status:</b>	Under negotiation
<b>Coordinator:</b>	Bernd Schäppi Österreichische Energieagentur, Austria E-mail: bernd.schaeppi@energyagency.at Tel: +43 1 586 15 24-147
<b>Partners:</b>	Österreichische Energieagentur (AEA), Austria
<b>Website:</b>	<a href="http://www.">http://www.</a>
<b>Benefits:</b>	PremiumLight should facilitate the transition to efficient high quality lighting solutions in households and thereby support the new legal instruments at the EU level.
<b>Keywords:</b>	Energy efficiency, Domestic lighting, CFL, LED, Product testing, Retailer campaigns, Consumer services, Purchasing guidelines, Product database, Rebate programmes, Media campaign
<b>Duration:</b>	01/06/2012 - 02/04/2015

The central aims of the project are to:

- support the EU-Ecodesign and labelling regulations on non directional and directional lighting with accompanying effective information measures and services
- motivate consumers to buy and use high quality energy efficient lighting products by providing them comprehensive knowledge and tools allowing easy selection of good products
- make high quality energy efficient lighting products easily visible and identifiable for buyers at the point of sale
- increase the supply of high quality energy efficient lighting products in the retail market

- support a reduction of the current price barriers regarding LED lamps
- support adequate fact based consumer information on energy efficient lighting technologies via media.

Based on the definition of the light source testing criteria and the options for good quality data collection from external testing the focus of the project's internal testing activities will be specified, with a focus on LED products, which have been sparsely covered in the past. Also CFL-Lamps will be covered. The goal is to test about 60-80 high quality lamps typically offered in the different EU Member States within the project. The selection of lamps will consider only products for which good quality and efficiency is already indicated by manufacturers.

Testing shall include all major different product designs important in households as for example light bulbs of different shapes and sizes as well as spots, reflector lamps, LFLs etc. Testing will be done in at least 2 testing series within the time period of summer 2012 and summer 2013. Lamp types to be tested will be selected based on the following criteria:

- coverage of different common types and sizes
- coverage of the different supplier markets
- avoiding redundancy of testing from external testing activities
- anonymous purchase from various stores and web.

## REFERENCES



























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4. ATLETE II project: [http://eaci-projects.eu/iee/page/Page.jsp?op=project\\_detail&prid=2496&side=projectbrief](http://eaci-projects.eu/iee/page/Page.jsp?op=project_detail&prid=2496&side=projectbrief)
5. ATLETE I project: [www.atlete.eu](http://www.atlete.eu)
6. ECOPLIANT project: [http://eaci-projects.eu/iee/page/Page.jsp?op=project\\_detail&prid=2497&side=projectbrief](http://eaci-projects.eu/iee/page/Page.jsp?op=project_detail&prid=2497&side=projectbrief)
7. PremiumLight project: [http://eaci-projects.eu/iee/page/Page.jsp?op=project\\_detail&prid=2499&side=projectbrief](http://eaci-projects.eu/iee/page/Page.jsp?op=project_detail&prid=2499&side=projectbrief)
8. Verification Testing Selection Criteria. Criteria for conducting verification testing under the Equipment Energy Efficiency Program”, Australian, State and Territory and New Zealand Governments, November 2011, downloadable at: <http://www.energyrating.gov.au/resources/program-publications/?viewPublicationID=2403>

**Please, contact the Come On Labels organisers in case of your interest for more information about product energy compliance testing:**

<http://www.come-on-labels.eu/about-the-project/contacts-eu>



## Come on Labels project members – contacts

	<b>Czech Republic – project coordinator</b>	<b>SEVEN</b> , The Energy Efficiency Center <a href="http://www.svn.cz">www.svn.cz</a>	
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	<b>Belgium</b>	<b>Brussels Energy Agency</b> <a href="http://www.curbain.be">www.curbain.be</a>	
	<b>Croatia</b>	<b>ELMA Kurtalj d.o.o</b> <a href="http://www.elma.hr">www.elma.hr</a>	
	<b>Germany</b>	<b>Öko-Institut e.V.</b> , Institute for Applied Ecology <a href="http://www.oeko.de">www.oeko.de</a>	
	<b>Great Britain</b>	<b>Severn Wye Energy Agency</b> <a href="http://www.swea.co.uk">www.swea.co.uk</a>	
	<b>Greece</b>	<b>Center for Renewable Energy Sources and Saving</b> <a href="http://www.cres.gr">www.cres.gr</a>	
	<b>Italy</b>	<b>ENEA</b> – Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile <a href="http://www.enea.it">www.enea.it</a>	
	<b>Latvia</b>	<b>Ekodoma, Ltd</b> <a href="http://www.ekodoma.lv">www.ekodoma.lv</a>	
	<b>Malta</b>	<b>Projects in Motion</b> <a href="http://www.pim.com.mt">www.pim.com.mt</a>	
	<b>Poland</b>	<b>KAPE</b> , Polish National Energy Conservation Agency <a href="http://www.kape.gov.pl">www.kape.gov.pl</a>	
	<b>Portugal</b>	<b>QUERCUS</b> – Associação Nacional de Conservação da Natureza <a href="http://www.ecocasa.pt">www.ecocasa.pt</a>	
	<b>Spain</b>	<b>ESCAN, S.A.</b> <a href="http://www.escansa.com">www.escansa.com</a>	



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[www.come-on-labels.eu](http://www.come-on-labels.eu)