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ECOPLIANT

European Ecodesign Compliance Project

Work Package 2:
Overcoming Barriers and Establishing Best Practices

Task 1:
Identify and describe existing best practices for market surveillance
and possible barriers to coordination

Subtask 1.3: Techniques for Selecting Products for Testing

Final Report on
Techniques for Selecting Products for Testing
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with input from ECOPLIANT project partners

Contents

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

Techniques for selecting products for testing

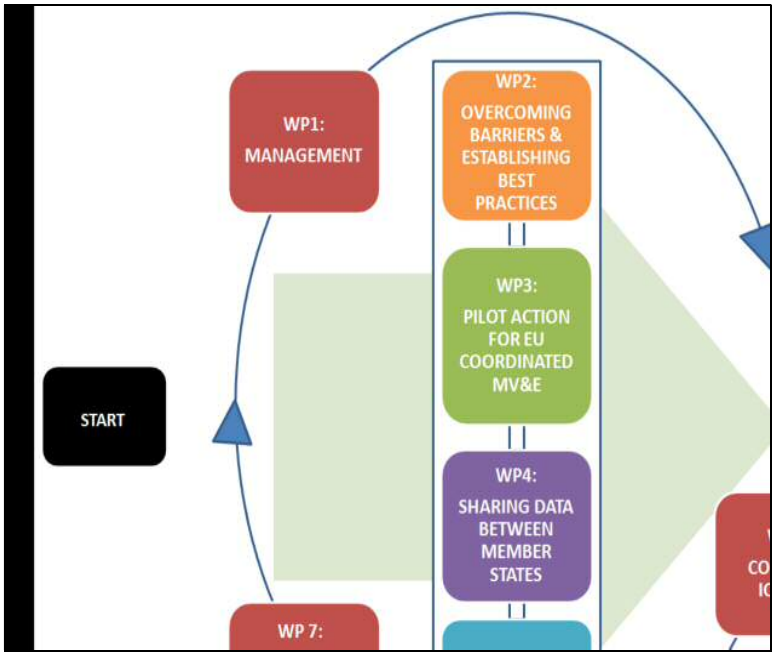
Introduction

The objective of ECOPLIANT - European Eco-design Compliance Project 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 the provisions of the directive and the relevant implementing measures.

The project Consortium members, a selection of ten national Market Surveillance Authorities (MSAs) and energy-related Agencies, believe that significant improvements in product compliance rates can be achieved by coordinating market surveillance activities. There are, however significant challenges to establishing such coordinated action: the "alignment" of the differences in national strategies and priorities, in national legislation, in the structure and responsibilities of national MSAs, together with the lack of common formats, procedures and mechanisms to share information and surveillance results.

The project therefore is aimed at designing, carrying out and evaluating the outcome of a coordinated market surveillance action over three years. The results from this action will be used to create a framework for a coordinated European market surveillance programme for eco-design. In Figure 1 the project general scheme is presented.

Figure 1: ECOPLIANT project general scheme



A key part of the project activities will be to identify and share existing experience and best practices for market surveillance and ecodesign enforcement, to be used as the basis for the planning of the coordinated market surveillance action. Based on the outcomes of the existing and the new activities, ECOPLIANT will then develop and

deliver guidance and training for national MSA personnel across the EEA, in order to transfer the acquired experience and further improve the surveillance actions for the energy using products under the ecodesign directive.

The aim of WP2 *Overcoming Barriers and Establishing Best Practices* is to describe and establish a resource efficient and successful way of carrying out coordinated market surveillance activities across the EU. The main outcome of this work package will be:

(i) drawing recommendations for overcoming barriers to coordinated market surveillance
(ii) the development and collection of the existing best practices that MSAs are currently using when carrying out national market surveillance
(iii) the development of a set of guidelines to be used by MSAs for future coordinated and effective national market surveillance programme(s).

The guidance developed in WP2 will be validated and improved through the field work activities in the following WP3 *Pilot Action for EU Coordinated Monitoring, Verification and Enforcement*.

Task 1 *Identify and describe existing best practices for market surveillance and possible barriers to coordination* is devoted to the review and analysis of a number of areas related to market surveillance:

- requirements of the ecodesign directive and related product specific requirements,
- national acts and enforcement systems
- existing strategies and practices in different Member States.

In each area, barriers for increased European coordination will be identified. In order to complement and confirm the data gathered throughout the studies, a comprehensive survey and a set of interviews is designed (in Task 2) to establish the situation in the partner countries.

Subtask 1.3 *Techniques for Selecting Products for Testing* is under the responsibility of ENEA – the Italian National Agency for New Technologies, Energy and Sustainable Economic Development, and has three main goals:

- *Targeting products for testing*: identify and analyse existing techniques used by different MSAs to target products for compliance testing, to understand the background, benefits and effectiveness of different targeting methods
- *Screening test techniques*: identify and analyse the 'screening' techniques used by different MSAs[1]
- *Identify information and technical parameters necessary for a database for screen test plans and results*: analyse the information in the above tasks to determine how this information should be checked and included in an accessible and user friendly database. This information feeds into the information repository output of WP4.

This Report describes the existing targeting and screening techniques used at EU and worldwide level to target products for following compliance testing in accredited laboratories.

[1]According to the definition given in the ECOPLIANT project these are preliminary low cost screening tests to assess the likelihood that a model will fail a compliance testing, before deciding whether to proceed with the compliance testing in accredited laboratories. These can be carried out in the field or by MSA personnel, rather than by a subcontracted accredited laboratory where all relevant parameters can be controlled.

1. Overview

The study of the targeting and screening techniques is based on two main sources: a desk research of publicly available information and the outcome of the ECOPLIANT Questionnaire complemented by ad-hoc interviews with selected experts among those having answered to the questionnaire.

2. The Desk Research

2.1 Geographical relevance

Techniques for selecting products for market surveillance were found in:

- several Member States: Denmark, UK, The Netherlands, Sweden,
- USA: EPA and DoE for Energy Star and energy efficiency requirements
- Australia: E3 Committee for national energy labelling and energy efficiency requirements
- IEE projects: ATLETE & ATLETE II, PROSAFE and EMARS

2.2 Technical relevance

Product selection criteria can be divided into two main groups, that give also a different outcome:

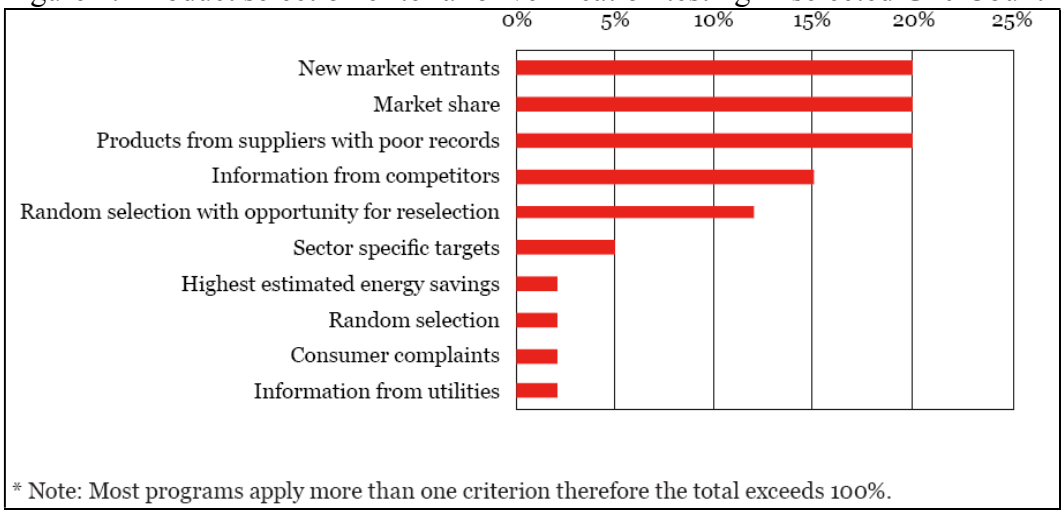
- "random or statistical based approach":
  - *random selection*: the 'failure rate' gives a picture of the market in a certain moment but requires considerable resources
  - "*semi-random selection*" random selection within best sellers (followed in ATLETE projects, the US Energy Star and the product testing developed in 2009 by the UK-MTP)

- "targeted approach":
  - *risk-based sampling*: through a series of factors that are considered to increase the risk of failure for the products. "Risk" needs to be interpreted widely, to include risks posed by poor product coverage or non-responsiveness to stakeholder complaints, as well as those elements more traditionally associated with risk already included as part of the selection criteria

A survey on the selection criteria for verification testing was developed in 2009/2010 in 14 (mainly G20) countries[2]. The outcome (Figure 2) shows that is far more common to select products according to a set of criteria rather than choose a random sample for testing; generally the criteria are used in combination, and while different programs place emphasis on particular criteria, there is considerable similarity in the type of criteria used.

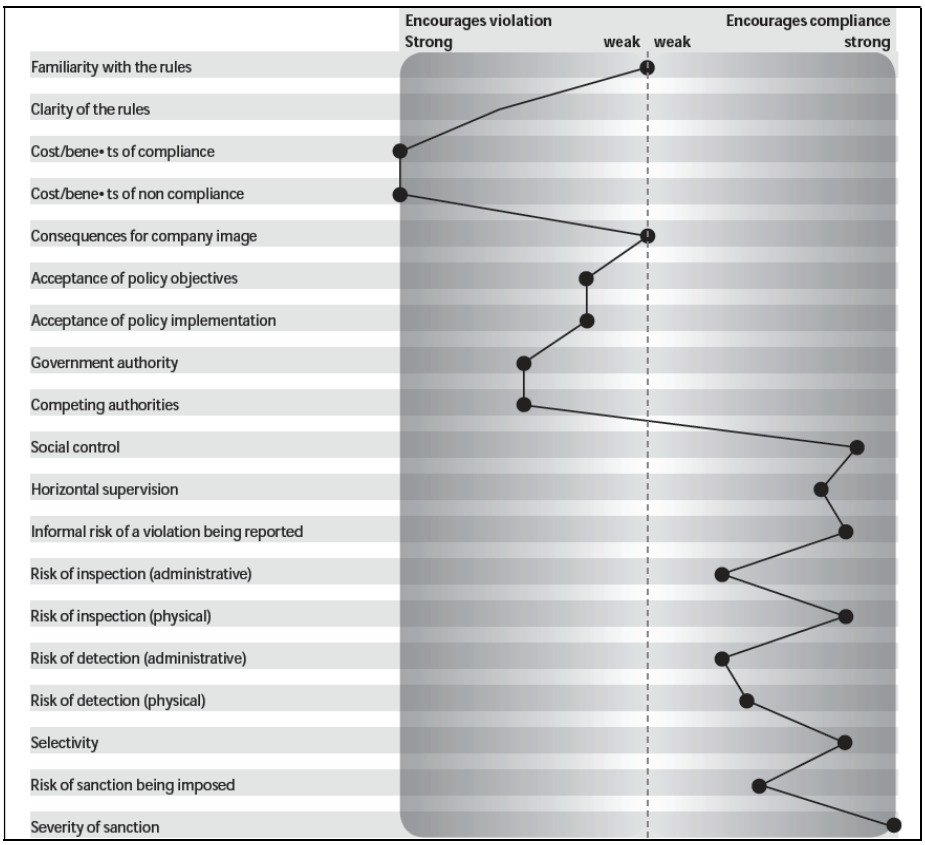
[2]E3-Australia, The Efficiency Standard: Summer 2012, from Survey of Monitoring, Verification and Enforcement Regimes and Activities in selected countries, by Mark Ellis & Associates in partnership with the Collaborative Labeling & Appliance Standards Program (CLASP), June 2010.

Figure 2: Product selection criteria for verification testing in selected G20 Countries



A targeting theory for market surveillance is included the PROSAFE project book, Annex E, prepared by the Enforcement Expertise Centre of the Dutch Ministry of Justice. The purpose of the characterisation of the target group for a specific kind of legislation was to estimate compliance levels to be expected for this legislation. For market surveillance authorities collecting information that gives a reliable idea of the composition of the target group helps in determining the proper intervention methods and to direct enforcement activities to those operators that are most likely to violate the legislation

Figure 3: Elements that encourage or discourage the compliance of products to the legislation



2.3 Examples of applied targeting techniques

2.3.1 *Australia and New Zealand*

2.3.1.1 Backgound

The national Equipment Energy Efficiency (E3) Program has existed in some form in Australia for 20 years with engagement by New Zealand agencies for the last 15 years. For much of this time, the regulatory agencies managing the programme have undertaken verification testing to check if suppliers are complying with mandatory minimum requirements and energy labelling.

On 13 September 2012 the *Greenhouse and Energy Minimum Standards Act 2012* (also known as GEMS) was passed by the Australian Parliament, to commence on 1 October 2012. It establishes a national framework for regulating the energy efficiency of products supplied or used within Australia, implementing Australian Government and the Council of Australian Governments commitments to establish national legislation to regulate energy efficiency and labelling requirements for appliances and other products. The national legislation permits the Australian Government to set mandatory minimum efficiency requirements for products. The Act also allows the Australian Government to set nationally-consistent labelling requirements, to increase Australians' awareness of options to improve energy efficiency and reduce energy consumption, energy costs and greenhouse gas emissions. The GEMS replaced seven overlapping State and Territory legislative frameworks, harmonising the regulation of equipment energy efficiency[3]..

The Act provides also for enhanced monitoring, verification and enforcement and allows the scope of the E3 Program to be expanded.

The Australian GEMS Regulator, in addition to the continuation of the practice of the State regulators under the previous E3 Program to issue infringement notices or ask businesses to compensate consumers for the cost of products that do not comply with regulations, will also have the power - for more serious breaches of the law - to allow the courts to impose financial penalties. Another novelty will be the requirement for registrants to Australian GEMS Regulator to submit annual data on sales and import/export of each registered model, as already required by the New Zealand Regulator. The data will facilitate the establishment of revised minimum requirements levels and labelling algorithms and will improve the evaluation of the E3 Program.

The E3 Program will no longer set a single registration fee in Australia for all product types, as was the case under Australian State and Territory laws. Product types will be grouped into one of four fee bands. These fees will range from 440 AU$ to 780 AU$ and will cover a five year registration period. The new registration fee bands will cover costs associated with processing registration applications and will also go towards the cost of compliance monitoring activities. The funds collected will also enable the E3 Program to deliver improvements in program administration and enforcement.

[3] http://www.energyrating.gov.au/commencement-of-gems-legislation/

A transitional period of at least six months is foreseen for suppliers in order to move to the new Australia's national legislation scheme.

2.3.1.2 Compliance regime and verification testing (summary)

Verification testing (also known as "check testing") has been undertaken according to published criteria for many years. Those criteria were often derived from methodology specified by the test standard or protocol.

The national check testing program is just one element of the overall "Compliance Regime" managed by the E3 Committee, in conjunction with state-based regulators. Other compliance activities range across:

(a) information and support through education, stakeholder forums and other communication activities
(b) in-store surveys to check that the correct labels are being displayed[4]
(c) inspections to ensure that products on the market are registered[5]
(d) administrative settlement actions for matters where a formal penalty or other proceedings are not warranted, including referrals to other enforcement agencies like the Australian Competition and Consumer Commission
(e) Court and other related proceedings (for example infringement notices) for matters where such action is warranted.

Check testing remains the cornerstone of the compliance activities and provides several important functions with respect to the energy efficiency regulatory programme:

- it confirms appliances are meeting their declared energy efficiency and therefore the projected energy and greenhouse gas savings are actually being delivered
- it safeguards the integrity of program by maintaining consumer and industry confidence in the energy performance labels and minimum requirements
- it protects the investment made by industry producing compliant equipments with their compliance cost structures, from unfair competition by non-compliant products.

Regular check testing[6] is undertaken on a range of domestic and commercial product types including white goods, air-conditioners, electric water heaters, ICT, lighting, motors and commercial refrigeration.

The first step – Stage 1 – in the check testing process is the Stage 1 check test (also known as the "screen test") usually performed on one sample of the model randomly sourced and independently purchased (usually through a retail outlet); for some products more than one sample is required. This sample is tested by a laboratory accredited to undertake check testing on behalf of the regulatory Authorities.

Only NATA (National Association of Testing Authorities) accredited laboratories or laboratories accredited by bodies with a mutual recognition agreement with NATA, and with a registration that permits them to issue test reports for the test in question, are

[4] See: http://www.energyrating.gov.au/library/details201101-aircon-labelling-survey.html
[5] See: http://www.energyrating.gov.au/library/details200910-labelling-compliance-survey.html
[6] http://www.energyrating.gov.au/programs/e3-program/compliance/checktesting-process/

approved to undertake check testing. In circumstances where Stage 1 check testing is to be undertaken at a supplier's own Australian located NATA registered laboratory, regulatory agencies will accept the results provided a NATA appointed witness is present throughout the testing. Costs associated with the provision of a NATA appointed witness are borne by the supplier.

Where the Stage 1 check test shows non-compliance with the relevant standard, the supplier can elect to request the cancellation of the registration for the model in question or proceed to Stage 2 check testing. If the supplier elects to cancel the registration of the model in question a letter will be sent to the Regulator in the State the product was registered recommending cancellation of the product's registration. Once the product's registration has been cancelled the supplier is contacted about providing consumer and environment compensation for the additional energy consumed and greenhouse gases produced by the product.

If the supplier chooses to proceed to Stage 2 testing they must provide a list of products, held in stock, from which 2-3 units are randomly selected for testing. Stage 2 check test procedures require that satisfactory test reports from an accredited check testing laboratory on two units (where the failure relates to performance standards) or three units (where failure relates to a 'supplier declaration' e.g. claims on labels) be supplied to the compliance program administrator.

If the products fail the Stage 2 check test the registration is automatically recommended for cancellation by the relevant Regulator, and a process is entered into with the supplier to provide consumer and environment compensation for the additional energy consumed and greenhouse gases produced by the product.

As far as the costs are concerned, **S**tage 1 check test costs are generally met by the regulatory Agency. Where the supplier decides to undertake Stage 2 check testing, he will be liable for all Stage 2 check testing related costs irrespective of the outcome. Where a unit selected for check testing is demonstrated to be defective in manufacture, the supplier will be liable for all resulting additional costs incurred for check testing.

2.3.1.3 The selection criteria of the previous E3 Programme

The number of tests conducted each year by the E3 Program was due to the available budget and the cost of individual tests. The testing programme has grown up to testing over 300 products per annum, that represent about 2% of the approximately 16.000 approved product registrations.

The selection criteria have been developed to achieve targeted testing of at-risk products. The criteria, described in the Administrative Guidelines[7], were last updated in 2005 and mix two types of factors:

1) those intended to indicate a higher likelihood of failure
2) those with the greatest potential impact on the energy and greenhouse savings.

[7] The National Appliance and Equipment Energy Efficiency Program Administrative Guideline – Edition 5, June 2005

Selection criteria were:

- **Newer models**: because of their potential to remain on the market for a longer period as compared to older models, except where models have been on the market for 3 years or more without being subjected to testing
- **Models with high volumes of sales**: because of their greater potential to impact on energy usage as compared to models with low sales volumes
- **Models with the highest claims for energy efficiency** (e.g. high star ratings[8]): because of the market's higher expectations with respect to the performance of these models as compared to models with low ratings
- **Suppliers with a record of check testing non-compliance**: because of the likelihood of a continuation of such historical trends
- **Models with complaints received from third parties**: (competitors, consumers, consumer groups, regulatory agencies, etc.)
- **New brands**: to the (Australian) market.

With the forthcoming introduction of GEMS it was considered appropriate to review the suitability of the existing selection criteria for the new compliance and enforcement capacities contained in the new legislation.

2.3.1.4 New E3 Programme under GEMS legislation

With the new legislation the process of selecting products for testing will be changed to ensure that there is a spread of testing across all equipment types regulated under the E3 Program. A scoring system will be implemented using the range of selection criteria to identify and rank products that pose the greatest risk to the program. The use of the scoring system will also help to improve transparency and disclosure surrounding the use of selection criteria.

While confidentiality will continue while investigations are conducted, a more open scheme including public reporting in several forms will become a feature of the revised process. This more open system will be achieved by documenting reasons for product selection which will be available to suppliers and eventually third-parties. This greater disclosure should permit better analysis by E3 and third parties to determine if the selection process is indeed delivering benefits.

This move to more openness in reporting on equipment selection will take the form of recording the decisions for choosing specific models for testing using the revised criteria. It will also take the form of historical reviews to assess whether the selection criteria, as applied, have delivered a cost-effective check testing regime. The historical reviews will assess if the selection criteria continue to focus attention on the areas of most compliance risk to the Program.

New E3 Program proposed to adopt three key objectives for the revised selection criteria:

1) to identify products with a higher than average risk of failure to meet minimum efficiency requirements or energy performance claims by responding to market

[8] Note: star rating is the labelling scheme in Australia and New Zealand.

intelligence
2) to identify products which have the greatest potential impact on the energy and greenhouse savings
3) to cover each category of appliance and equipment products regulated under the programme.

These objectives were further developed to create selection criteria that pinpoint the individual models for testing to best respond to external intelligence & complaint, risk-based and program-wide selection criteria. The following eleven criteria were developed to assess the need of checking particular models using a weighing system:

- *Criteria to identify products with a higher risk of not meeting performance claims, reacting to market intelligence*: there are a number of reliable sources of market intelligence that highlight potential non-compliance. These include competitor complaints, intelligence from overseas testing programs and intelligence from consumer groups and individuals:
  - **complaints from competitors**: competitors are well placed to identify non-compliant products and have a commercial interest as well as public interest in bringing this to the attention of regulators. As a result many energy efficiency programs overseas place considerable reliance upon intelligence provided by market suppliers. Regulatory Agencies, however, must critically assess these competitor complaints to avoid accepting claims with malicious intent or made with little or no substantiation. Therefore, the E3 Committee seeks to strike a reasonable balance between encouraging competitor complaint and requiring some independent substantiation of those complaints. The selection criteria will weight the information against the following hierarchy:
    → competitor complaint with evidence supplied that is compelling and free from any suggestion of tampering, where there is willingness to supply a test report from a NATA accredited laboratory and the tested unit to DCCEE as evidence
    → competitor complaint with evidence that goes to establish non-compliance but is from in-house sources or could be questioned on the basis of competitive bias
    → complaint which might be considered expressing a suspicion of non-compliance but without supporting evidence.

    The weighting for this criterion will be between 5 and 25 points depending on the quality and source of the information.
  - **Intelligence from overseas testing programs**: many of the product categories regulated under the E3 Program are also subject to verification testing by energy efficiency regulators and program managers overseas. It is reasonable to assume that products which have failed to meet the performance criteria in an overseas market may also fail to meet Australian requirements and therefore should be targeted for testing. This intelligence could take the form of detailed test results on particular models that may be sold locally or timely reporting on suppliers under scrutiny in markets where the brand is traded in Australia or New Zealand. The explicit addition of this criterion would be useful in itself as a deterrent. It reinforces the linkages between regulators in Australia and their overseas equivalents in the minds of multi-national suppliers. It would also help legitimise the developing exchange of information between regulatory agencies involved in standards and labelling programs.

    The E3 Committee will establish a weighting for this criterion of between 5 and 25 depending on the quality of the information.

- *Criteria to identify products which have the greatest potential to impact on the energy and greenhouse savings*: to target testing products where non-compliance places enhanced risk of failing to meet the energy and greenhouse targets claimed as a result of regulating the equipment type.
  - **Models with a high market share**: in many product categories there are a relatively small number of products that account for a large proportion of the annual sales and are therefore responsible for a high level of energy consumption. As a result, ensuring that the best selling

models within a product category meet energy and performance requirements is important in order to safeguard the overall expected energy and greenhouse emission savings. Where it is not possible to determine the market share of newer product models, for example where sales data is not yet available for that particular model, the use of past sales data for similar models or other independent market data should be used to inform the weighting of this criterion.

The E3 Committee will establish a weighting of between 0 and 15.

- **Product categories with the highest greenhouse gas emissions**: there is considerable variation in the expected energy savings from regulations on different product categories. As a result, the impact of non-compliant models that represent a high market share in those categories responsible for a large proportion of savings will be greater than for equivalent models in categories with lower greenhouse savings estimates. This suggests that greater emphasis should be placed on product categories with the highest savings estimates, particularly where these categories haven't been covered in testing recently, with a focus on products with the largest market share.

  The E3 Committee will establish a weighting for this criterion of 5 for products which have a cumulative impact of greater than 10.000 $ktCO_2$ below BAU by 2030 and 0 for products below that number.

- **Past history criteria**: criteria that identify products sold by companies deemed to have a higher probability of failure, based on previous experience. These criteria will use a simple system prioritising:

  → brands with a history of non-compliance: experience shows that some brands do have an above average level of non-compliance, sometimes in particular product categories and sometimes across several. An examination of the records since check testing commenced shows a number of brands which have had two or more registrations cancelled by regulators, indicating that these might be worthwhile targets for future investigation. The E3 Committee will establish a weighting for this criterion of 5.

  Models registered by brands for which there is no history within the Program also represent a slightly greater risk of non-compliance since the absence of established compliance gives rise to a presumption that the brand may not have a full understanding of the Program requirements.

  The E3 Committee will establish a weighting for this criterion of 5. Brands that have been tested many times and found compliant on numerous occasions will be weighted at -5.

  → Product categories with comparatively higher levels of non-compliance: The proportion of tested products that have failed testing varies considerably by product category, from 41% in the case of air conditioners to 0% for lighting ballasts, distribution transformers and set top boxes. There is no obvious correlation between the length of time that a product has been regulated and compliance rates: regulations have been in force for air conditioners since 2001 and yet non-compliance rates are at 41%, while products such as televisions show better compliance rates even though they have been regulated for a short period of time. This suggests that targeting those product categories with a record of non-compliance should be one of the selection criteria. This would not negate the need to test models from all product categories but would focus testing toward product categories with a more significant failure rate than other categories.

  The E3 Committee will weight air conditioners under this criterion as between 5 and 10 depending on the category, other product types with a failure rate at or above 15% as 5 and products under 15% as 0.

  → Models supported by test laboratories with a past history of failing check tests or without a past history: test laboratory past history or limited history can be a risk factor. The maintenance of high standards by test laboratories underpins the integrity of the E3 Program. Where check testing results indicate a high proportion of failures of models supported by reports from particular test facilities, there is justification to consider that future tests conducted by these laboratories represent an above average risk of failure, especially if they are not in a position to demonstrate remedial action. As the scope of the E3 Program broadens to new products, registrations have been supported by an increasing

number of test laboratories. The Australian Government policy is to allow for testing to be undertaken by as wide a range of suppliers and third parties as possible in order to not unduly restrict access, to reduce compliance costs for traded goods and to avoid any capacity limitations of Australian test laboratories. The E3 Program will examine past testing records with a view to establishing a list of test houses with more than 2 failures to be targeted in future check testing.

Australian regulators are not in a position to have full knowledge of the accreditation or ability of all test laboratories to understand and conduct tests according to the requirements of the relevant Australian/New Zealand Standards, particularly those overseas. In order to ensure that laboratories maintain the technical standards of the Program, it is important that laboratories undertaking tests for the first time are checked in a timely fashion. As the risk of problems is unknown for test houses previously untried under the scheme, the risk analysis should be weighted toward facilities with a poor history or without any history of involvement in the Australian or country-of-origin energy efficiency programmes.

Therefore the E3 Committee will weight products registered with test reports from test houses:

- with no history at 10;
- where a subsequent check test has resulted in a failure at 5; and
- where subsequent check tests have resulted in multiple failures at 10.

→ New product categories; testing products in newly added product categories serves the highly beneficial function of demonstrating to new industries that compliance is taken seriously and applies to everyone

This would weight newly regulated products (less than 5 years) somewhere between 0-10 with products regulated for longer than 5 years awarded 0.

– **Ensuring full coverage of all regulated equipment types**: in Australia there are more than 20 categories of regulated products and the largest number of check tests has been conducted on the products that have been regulated for the longest period. This relationship between the length of time a product has been regulated and the number of check-tests completed is not necessarily consistent. There are some product categories where little or no testing has been undertaken. In these cases, insufficient data exists to quantify the risk of non-compliance for that product type which in itself is a risk to the E3 Program. To meet the overall quality assurance aims of the testing program it is important that samples from all regulated product categories are tested. In order to ensure a more even spread of product testing and taking account of financial and resource constraints, the E3 will focus testing on particular product types in each financial year in a cyclic approach, ensuring all products are identified as a priority item at times when they may represent a greater risk.

The described criteria are listed in Table 1 along with their relevant weight. From 2012, models are selected for testing against the criteria: products scored at 25 or above will be recommended for check testing, products scored <25 will not be tested, unless there are special circumstances. This minimum threshold may be adjusted on review of the process and with experience. Any future change to the scoring thresholds will be communicated to stakeholders.

E3 proposes to make this selection process as transparent as possible. Staff involved in selecting products will record the reasons why individual products were selected and make those decisions available to the supplier upon request. This information may also be released in the form of an entry on a publicly accessible register. The information may also be aggregated and used to evaluate the criteria and the selection process.

The criteria are not intended to find models which achieve the highest possible rating, but are about requiring staff selecting products for verification testing to undertake a transparent process with sound justification for selecting the models tested. The

numerical weighting for each criterion provides an indication of its relative importance in the overall selection process.

Table 1: New criteria for the selection of products for verification testing in Australia

Criteria	Products with a high risk of failure	Products which have the greatest potential impact
1a. Complaints from competitors 1b. Intelligence from consumer groups and individuals 1c. Intelligence from overseas testing programs		
– Supported by independent evidence – Supported by non-independent evidence – Without evidence	25 10 5	
2. Models with a high market share		0-15
3. Brands with a history of non-compliance	5	
4. Product categories with the highest greenhouse gas emissions		0-5
5. New Brands or brands with limited exposure to the Program	5	
6. Brands with a history of passing check testing	-5	
7. Product categories with comparatively high levels of non-compliance	0-10	
8. Models supported by test laboratories with a past history of failing check tests	5-10	
10. Models supported by test laboratories without a past history	10	
11. New product categories. Less than 5 years = 0-10/ longer than 5 years = 0	0-10	

Following implementation and a period of use of the selection criteria, the scores allocated to individual criterion will also be reviewed in light of the results achieved by the testing programme to ensure that the weighting given to each criterion is satisfactory. It is also intended that the selection criteria will be reviewed against international programs to ensure that the E3 Program aligns with international best practice in regulatory compliance.

The E3 Committee recognises the balance must strike between creating a workable scheme that identifies using risk products most suitable for testing while also ensuring all parties (whether they be product supplier, competitor or consumer) have confidence in the process through transparency and regular evaluation.

2.3.2 *USA*

The US energy efficiency legislation is based on three different programmes: minimum efficiency and functional performance requirements set at Federal as well as at the State levels and two labelling programmes: the voluntary ENERGY STAR and the mandatory Energy Guide. Each programme has is own market surveillance Authority and rules.

2.3.2.1 Surveillance of the ENERGY STAR

ENERGY STAR® is a joint program of the U.S. Department of Energy (DoE) and the U.S. Environmental Protection Agency (EPA). The program has a dual focus on energy and cost savings.

In 2010, DoE launched a pilot program to verify the energy efficiency and water-use characteristics of selected ENERGY STAR products through laboratory testing. The pilot verification program helped ensure that ENERGY STAR products deliver the efficient use of energy and water that consumers expect, while minimizing costs and inconvenience to product manufacturers. DoE is continuing this effort, leveraging experience gained from the pilot program and expanding it to several new product types.

In 2011, EPA launched new requirements for qualifying products as ENERGY STAR. Program partners are now required to have models third-party certified by an EPA-recognized Certification Body (CB) to the ENERGY STAR specifications, based on test data provided by an EPA-recognized laboratory. In addition to certifying products as ENERGY STAR, the Certification Body verifies that a certain percentage of basic models it has certified continue to meet the ENERGY STAR requirements through verification testing on an annual basis.

As consequence, both Certification Bodies and DoE will be conducting verification testing on ENERGY STAR products.

2.3.2.1.1 The Department of Energy approach

DoE manages the ENERGY STAR verification testing program for DoE covered products. Program management includes:

- determining ENERGY STAR product types to test
- selecting ENERGY STAR models for verification testing based on specific programmatic criteria
- securing testing services using third - party test laboratories having the appropriate capabilities and accreditations
- procuring all ENERGY STAR models selected for verification testing
- developing and maintaining test report templates
- monitoring test laboratories to ensure adherence to prescribed test procedures and established quality assurance/quality control programs
- approving laboratory test reports
- comparing test results to relevant ENERGY STAR requirements, DOE energy conservation standards and DOE certification requirements;
- notifying the Manufacturer if a model does not meet ENERGY STAR specifications;
- notifying EPA if test results indicate that a product is not in compliance with ENERGY STAR specifications
- notifying the Federal Trade Commission (FTC) if test results indicate that a model is not appropriately rated or labelled

- arranging for re‐use or disposal of products after testing.

Model selection criteria include, but are not limited to:

- date of the product listed on ENERGY STAR website, with preference given to newest products
- history of manufacturer not meeting ENERGY STAR specifications
- ratings much higher than ENERGY STAR specification, preferentially selected because market expectations are higher
- product class experience: emphasis on product classes in which previous models were found not to meet ENERGY STAR specifications
- new technology
- products that have requested a waiver from the DoE scheme
- credible information on a specific product's performance from a third party.

DoE or a DoE representative will be responsible for obtaining samples for testing. Units for verification testing will be obtained from retail.

As already said, in 2010, DoE launched a Pilot Program to verify the energy efficiency and water-use characteristics of selected products through laboratory testing. The results helped to identify several issues with product selection and procurement that were remedied in the revised verification program process:

- lack of information regarding manufacturer's basic model[9] identification caused difficulty in selecting individual models and may have led to multiple models within the same basic model being tested. DoE has recently published revised certification reporting requirements for products covered by Federal energy conservation standards. Following the compliance date for these requirements, which varies by product, DoE will have access to manufacturer-supplied basic models for all ENERGY STAR products that are also covered by the Department under its Energy Conservation Standards Program. This information, cross-referenced with the ENERGY STAR database, should provide sufficient information to identify ENERGY STAR qualified basic models and their derivative models and prevent the Department from conducting testing of multiple models within a single basic model;
- once models were identified, procurement was often difficult because models were no longer available for sale on the market: the Department will target products that have more recently entered the market, based on certification dates provided to the Department as part of the certification reporting outlined above;
- statistical deficiencies inherent in procuring multiple units of the same model from one vendor: the Department has specified that units should be purchased from multiple vendors, where possible.

[9] basic model means "all units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency" (10 FR 430;2)

2.3.2.1.2 The Energy Star Certification Body approach

Among conditions and criteria for recognition of Certification Bodies for the ENERGY STAR Program detailed specifications relate to the verification testing. The CB shall operate an ENERGY STAR partner-funded verification testing procedure that fulfils the verification testing requirements as follows:

(1) ensure products meet all product performance parameters as described in the relevant ENERGY STAR product specification;

(2) number of products:
   (a) annually test at least 10% of all ENERGY STAR qualified models the CB has certified or for which it has received qualified product data
   (b) in the case of ENERGY STAR specifications that address multiple product types, the CB will annually test at least 10% of each type
   (c) when determining the number of models subject to verification testing, the CB shall consider product families as defined in the relevant product specification, and in consultation with EPA
   (d) in the event of significant product failures, EPA may advise the CB to increase the number of models tested in subsequent years. The minimum number of products tested may differ by product category;

(3) products shall be selected by the CB according to the following general guidelines:
   (a) the CB shall select models for verification testing from the ENERGY STAR qualified models the CB has certified;
   (b) approximately 50% of models to be tested shall be randomly selected; although the more recently a model has undergone verification or challenge testing the less likely it should be selected in this random selection process; and
   (c) the remaining models shall comprise referrals from EPA as provided, and models selected in consideration of the following factors:
      (i) product classes from ENERGY STAR partners for which previous models failed verification testing;
      (ii) referrals from third parties such as consumers, consumer groups or regulatory agencies regarding the accuracy of ratings; and,
      (iii) models with high sales volumes if this data is available to the CB.

2.3.2.2 Surveillance of the Federal Efficiency Requirements

During 2011 the new provision about market surveillance set in the Final rule "Energy Conservation Program: Certification, Compliance, and Enforcement for Consumer Products and Commercial and Industrial Equipment, entered into force.

The publication of the new Federal rule revised the U.S. Department of Energy existing certification, compliance, and enforcement regulations for certain consumer products and commercial and industrial equipment covered under the Energy Policy and Conservation Act of 1975, as amended.

These regulations provide for sampling plans used in determining compliance with existing standards, manufacturer submission of compliance statements and certification reports to DoE, maintenance of compliance records by manufacturers, and the

availability of enforcement actions for improper certification or noncompliance with an applicable standard. Ultimately, the provisions being adopted in this final rule will allow DoE to enforce systematically the applicable energy and water conservation standards for covered products and covered equipment and provide for more accurate, comprehensive information about the energy and water use characteristics of products sold in the United States.

The main modifications introduced by the new rule are:

- removing the current provision requiring DoE to receive a written complaint before it can perform enforcement testing
- allowing the Department to select units from retail, distribution or manufacturer sources, to ensure enforcement test results that are as unbiased, accurate and representative as possible
- recognising that the current regulatory approach, involving DoE selected units and third party testing, may be impracticable for low-volume, custom built products or where adequate laboratory facilities are unavailable;
  → an alternative approach is allowed in such exceptional cases: DoE witnessed testing at the manufacturer's lab and/or reduced sample sizes, to permit effective enforcement testing without imposing unreasonable burdens on manufacturers.

2.3.3 Europe

2.3.3.1 UK

An example of the product selection criteria applied in UK is described in the document "Market Transformation Programme, 2008/2009 Energy Label Market Picture Testing – Domestic Washer/Driers" that describes the results of energy efficiency label tests carried out on 24 domestic washer/driers to provide market intelligence for Defra's Sustainable Consumption and Production (SCP) Programme through the MTP. All tests were carried out between December 2008 and March 2009 in a UKAS accredited test laboratory.

The tested models were selected from ranges of washer/driers available on the UK market and purchased anonymously from the consumer retail market.

The brand selection covered:

- the top selling brands in terms of units sold based on 2007 data. The models were selected from these brands listed in 2007 GFK market data and broadly reflected the range of appliances in that brand in terms of proportion of sales and time on market:
  - the top 21 brands selected cover 91% of the market and each had one sample appliance tested
  - the top three brands represent 62% of the market and had an additional appliance of a different type tested
- to avoid testing the same basic design machines with different fascias and brand labels, a variety of wash/dry load capacities were selected for brands of common ownership
- some built-in units were also selected to broaden the range of types and avoid duplication

- some brands with a small share of the market were included to broaden the scope and a trade brand model from John Lewis was also selected
- research was subsequently carried out by visiting on-line purchasing sources to check availability of these models and in some cases they were substituted for newer models to avoid issues with obsolescence or availability. The newer models selected were, where possible, identified as the most popular current seller

In April 2010 the NMO Enforcement Directorate undertook the first test programme project as part of the ecodesign enforcement work in the sector of domestic refrigerating appliances.

Models selection was based on:

- risk indicators, to ensure that the sample of test appliances was not only a significant sample of the market but also to maximise the efficiency of the test programme by indentifying those products most likely to fail by considering factors such as probability of non-compliance and market penetration
- market intelligence was also used to identify probable possible non-compliance
- energy labelling price comparisons and price comparison between freezers; this involved looking at:
  - refrigerating appliances that were relatively cheap while claiming high energy classes
  - comparing appliances that had similar volume and claimed to be the same energy class but with large differences in price
- information from consumer advice groups
- internet research targeting only those claiming to be class A or above as to check for compliance to the minimum ecodesign efficiency requirements
- type of refrigerating appliance:
  - chest freezers as these were an area of high risk
  - a variety of larder fridges and fridge freezers that have the largest market share
  - a large American style fridge freezer that use a large amount of energy.

2.3.3.2 Denmark

On behalf of the Danish Energy Agency, the Secretariat for Ecodesign and Energy Labelling of Products conducts market surveillance activities for energy related products on the Danish market.
The secretariat is responsible for all practical enforcement activities related to regulations under the Ecodesign Directive and the Energy Labelling Directive including co-ordinating the laboratory measurements of products selected for testing.

The tasks of the secretariat can be divided into the following main categories:

- inspection of documentation that products comply with requirements
- laboratory measurements of products' compliance with requirements (tests are being conducted at accredited test laboratories). Enforcement vis-a-vis manufacturer/supplier in case the lab tests shows non-compliance.
- Internet and advertisement inspection: Inspection of product information in advertising on the internet and in printed advertisements

- inspection of shops: inspection of whether displayed products are correctly labelled in shops
- guidance of manufacturers/suppliers on how to understand and comply with the legislation, responses to any other enquiries as well as handling of complaints.

Since 2011series of document inspections has been completed before carrying out more expensive laboratory tests. Products for which the manufacturer cannot show compliance with requirements to the technical documentation are handled at this stage and need in general not to be tested in a laboratory.

The selection of products and of the manufacturers is performed according to the following principles:

- substantiated suspicion, i.e. from a previous conducted document inspections
- previous unacceptable test results for the same manufacturer/supplier
- market share
- low price segment (as experience shows higher degree of non-compliance with these products)
- Danish importers of products manufactured outside the EU
- over a period of time products from all producers/importers should be inspected.

The Danish Energy Agency can initiates campaigns on a specific topic, e.g. the refrigerators' use of climate classes 'tropical' and 'subtropical' in order to obtain a higher energy efficiency class. Such campaigns are carried out by the secretariat.

2.3.3.3 Sweden

The Swedish Energy Agency is responsible for market surveillance of the Ecodesign directive, the Energy Labelling directive and the regulation of tyres.

The Swedish Energy Agency took over the responsibility as the national MSA in 2006.

Up to then, the Swedish Consumer Agency, with its laboratory Testlab, had performed tests on regulated products and also, in its capacity as supervisory authority, inspected the energy labelling in white goods retail outlets in co-operation with the local (municipal) consumer advisors. Testlab now belongs to the Swedish Energy Agency.

The Swedish Energy Agency does in-house testing on the energy performance and other requirements of products, such as white goods, external power supplies, TVs and lightning. Other regulated products are tested at outsourced laboratories. The Swedish Energy Agency also inspects shops, Internet and advertising leaflets according to the directives.

Usually product targeting is based on best sellers, brands with a history of non-compliance, new entrants on the market and/or complaints. The Swedish Energy Agency now starts to select products also on the basis of the technical documentation

2.3.4 European Projects

2.3.4.1 ATLETE II

The ATLETE II (Appliance Testing for Washing Machines Energy Label & Ecodesign Evaluation project) project is co-financed by the IEE programme. The goals are to check the pan-EU compliance of washing machines with energy labelling and eco-design requirements using the new measurement method, to improve the capacity of testing laboratories and at the same time support co-operation among national Authorities for effective market surveillance.

The approach to models selection is a "semi-random selection" procedure, focused on the best sold models. The aim is testing 50 automatic, horizontal axis washing machines, to be randomly selected within a shortlist of models. The intention is to focus on:

- the bestseller products for each manufacturer/ producer that has a market share above 0,1% on the EU 27 market
- and national champions in following countries: AT, BE, CZ, DK, FR, DE, IT, NL, PL, ES, SE, UK with market share above 1%.

The selection of the models to be tested is based on the Market Share of each supplier (including all the owned brands) at European level according to the data provided by the Market Research firm for a specific period of the year. In particular:

- 5 models for each of the expected 4 manufacturers with a Market Share ≥ 10% (total of 20 models);
- 3 models for each of the expected 3 manufacturers with 5% ≤ MS <10% (total of 9 models);
- 2 models for each of the expected 5 manufacturers with 1% ≤ MS <5% (total of 10 modes)
- 1 model for each of the expected 5 manufacturers with 0,5% ≤ MS <1% (total of 5 modes)
- 6 models randomly selected for the remaining 252 manufacturers.

To avoid disappearing of selected washing machines models from the market, once the number of models to be verified per manufacturer is decided it will be published on the project website but the actual selection of the specific models to be tested will be done in 3 batches. This approach will reduce the time-to-test (i.e. the time from the announcement that a specific model will be tested to the time of the actual completion of the tests including the purchase of the 1+3 units). For the same reason, for suppliers with a very small market share 1+3 models are purchased since the beginning.

2.3.4.2 Other projects

For information about the SELINA project see paragraph 2.3.5.3.

2.3.5 Screening techniques

2.3.5.1 Working definition

According to ECOPLIANT project *screening tests are preliminary low cost screening test to assess the likelihood that a model will fail full compliance testing, before deciding whether to proceed with the full compliance testing in accredited laboratories. Screening tests can be carried out in the field or by MSA personnel, rather than by a sub-contracted accredited laboratory where all relevant parameters can be controlled.*

Therefore a screening test is not Step 1 of the EU verification procedure.

In the surveyed literature no mention was found to low cost screening test to assess the likelihood that a model will fail following compliance testing and to be used for this purpose a part from the standby power store surveys conducted in Australia for more than a decade. A similar exercise has been developed within the EU SELINA project, although its scope was to characterize the level of the power consumption in standby models of products in shops and to select products for further compliance verification.

In addition the International Standard for washing machines IEC 60456:2010 includes a specific informative Annex that warns about the limitations of developing simplified tests.

2.3.5.2 Australia standby consumption shop survey

The annual store surveys, conducted as part of Australia's Standby Power Strategy from 2002 to 2012, are one way the E3 Program monitors the standby power consumed by residential appliances. Another complementary approach is to survey the standby power used by products actually in private households. After a decade of Australian store surveys, the large amount of data collected for such a wide range of products has enabled the survey to achieve the original goals:

- the early surveys established a baseline, quantifying the standby consumption of products
- the following surveys established trend lines for over forty product types. These have allowed the success of manufacturers to reduce consumption in low power modes to be monitored and provided valuable information for the development of government policy and regulation.

The demonstrated success of the store survey makes it an obvious candidate for a new role in the standby power field. The proposed new Australian regulations for standby power will not require products to be registered and therefore will not generate an automatic database to assess the performance of products against the regulatory requirements. Store surveys are an adaptive and cost effective research tool which could be used in a broad or targeted manner to provide the necessary data. Store surveys could play a crucial role in the implementation of the standby regulations and assist in the compliance, monitoring and enforcement of them.
To maximise the impact of the current policy solutions and proposed regulations store

surveys could be utilised in a number of ways including:

- informing the government of the impact the regulations are having on the markets: continuing to conduct the store survey using the usual methodology would allow the impacts of the proposed regulations to be monitored for a broad range of regulated markets. Surveys measuring standby energy consumption of an opportunistic sample of products available in electrical retail outlets would provide valuable data on how the regulations are impacting the Australian market. Further, this sort of market monitoring will be the only way of gathering data which might be required for any possible future increase in stringency of standby requirements for some or all products. As technology develops store surveys can quickly demonstrate a change in energy consumption patterns for a product group. In the absence of registration data, store surveys are vital in monitoring the regulated markets;
- identifying industry sectors at risk of having many products unable to meet the 1 Watt target: the data collected in store surveys over the past ten years has identified some product types where a high proportion of models are not meeting the proposed regulation. This recurring high percentage of non-compliant products may indicate a sector which will struggle to comply with the regulation. The store surveys can therefore be used to identify particular product categories where trend data indicates real issues may exist, preventing compliance with the proposed regulatory levels;
- undertaking screening to select products for more onerous test house measurement in a regulated environment (post 2013 in Australia): once standby power regulation is implemented, regulatory Agencies will have statutory responsibilities to undertake monitoring, verification and enforcement processes. Store surveys of new products entering the market provide cost effective screening of low power mode levels and could be used as the first phase in a compliance testing regime. In this respect:
  - → store measurements have some limitations with respect to accuracy and detection of temporary and automatic modes; however, they could identify products which should be investigated further in a laboratory
  - → this would avoid expensive external facility testing for all products in favour of screening products to better target products in danger of not meeting the proposed regulatory levels
  - → even if initial store surveys identify "false problems", these can be verified in the controlled conditions of laboratory testing **well before any supplier is accused unfairly of not meeting the regulatory requirements**. Store surveys would rarely understate the power levels (so the chances of missing non-compliant products are small)
  - → the current store survey methodology could easily be migrated into a pre-test for compliance programmes to assess which product types, models and or brands warrant further investigation via a laboratory test procedure. For example a compliance methodology might include the following steps:
    1. **Identify products**: the first step in a compliance store survey would be to identify product types likely to have models not meeting regulation. Using previous studies and industry information (such as sales data) these would be targeted in retail stores. Products that historically had a wide variance in power consumption would be targeted. For example, 69% of DVD Players meet the regulations proposed for passive standby, yet 8% still consume greater than 5 Watts in this mode;

2. **Survey the stores**: using the existing store survey methodology take a sweep of the stores focussing on the products identified in the previous step;
3. **(prior to the regulation) Inform manufacturers of results**: at the end of the testing process, manufacturers/suppliers will be notified if any of their products are found not to meet the proposed legislation. The letter will inform them legislation is imminent and that in a pre-test their product had been found to be non-compliant;
4. **(after the regulation) Send products for testing**: once regulation has been introduced, Step 3 could continue to be used for products measured to be only marginally over the regulation levels, giving manufacturers the opportunity to correct the issues. For products over the targets by a substantial amount the product could be purchased on the spot during the store survey and forwarded to a testing house for a complete laboratory compliance test.

Store surveys also have the added benefit of providing an understanding of new product types that appear over time and identifying any potential gaps in regulatory cover.

- and potentially to measure energy wasted by network connected products: currently, the store survey has been unable to measure products connected to the network. Research being undertaken in Europe, however, is attempting to develop a tool which can improvise the network connection in stores. If the development of this tool is successful then store surveys could again play a key role in gaining the first insights into how much energy is consumed by new products in network standby.

Store survey methodology is based on the following conditions:

- retail outlets volunteer to participate in store surveys
- the products are measured on the shop floor in full view of staff and customers
- only products on display are tested
- products are not removed from their packaging
- a measurement guide is to be used.

The basic test kit shown in below Figure 4. the measurement procedure is based on the automatic PC logging xls macro, associated with that xls file. The automatic logging macro has been developed by the SELINA project (see below) specifically for the Wattman power meter recommended to be used in all testing. Manual input from other appropriate meters is also possible.

2.3.5.3 The IEE SELINA project

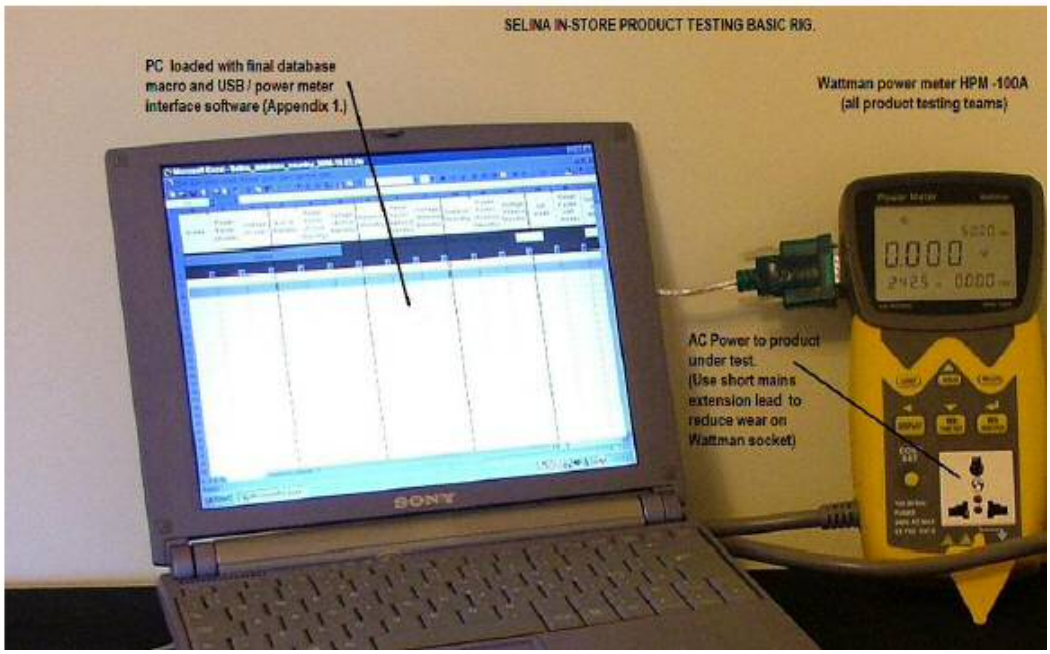
The IEE project SELINA (Standby and Off-Mode Energy Losses In New Appliances Measured in Shops) was directed to characterize the EU market in terms of standby and off-mode consumption in new electrical and electronic household and office equipment, being sold in shops, following a specific measuring methodology developed within the project. The results are available at: www.selina-project.eu..

Since there is a difference between the EU Regulation and the SELINA's definition for standby a comparison table was created. It was important to correctly identify the two EU standby modes because different standby consumption limits are set by the EU regulation 1275/2008 for each one of the low power modes.

Standby and off-mode values of more than 6000 different equipments were measured in the 12 EU countries involved in the project. The minimum recording requirements for each product are, Power (W), Power Factor and Voltage (V), as defined in the EC Regulation 1275/2008.

In order to ensure consistency of the collected data, a common measurement methodology was developed and the same high resolution measurement equipment (AD power – WATTMAN HPM-100A) was used by all partners in all countries. This way it was possible to collect comparable values between countries. A significant improvement was made regarding the acquisition and data storing mode. IT-Energy/Intertek/ARMINES developed a "macro" allowing the communication between the wattmeter and the excel data sheet. This enabled to minimize the errors due to data manipulation and a lot of time was saved for the measurement campaign. The measurement procedure is illustrated in Figure 4.

Figure 4: SELINA measurement equipment system



The measurement equipment (Wattman) is connected to the mains and connected to the computer; it can communicate with the excel data sheet through a macro. Then the product is plugged into the Wattman and the measurement can be started. The measurement can last between 1 to 10 minutes depending on the stability of the power consumption (the measurement time period is chosen by the user) and the average values are then recorded automatically into the excel file: voltage, power factor and active power.

Although the macro improved the measurement precision, it was not enough. An analysis of the measurement accuracy was performed, showing an average error of about 12%. The standard deviation was also calculated, which has a value of about 20%. This indicates that the measurement method in the shops needs to be improved.

The measurement procedure with the macro could certainly be completed in order to limit the human involvement in the measurement, but this would require an important engineering work by type of appliance and category, in order to further automate the acquisition by automatic signal treatment.

2.3.5.4 The international standard IEC 60456 Ed. 5

The international standard IEC 60456:2010 clothes washing machines for household use – methods for measuring the performance, issued in 2010 by SC59D Home Laundry Appliances, includes a specific Annex (Annex P, Informative, Testing deviations to reduce costs and their limitations) where the effects of deviating from the standard test conditions are highlighted. The first paragraph of Annex P is here reported:

P.1 Introduction

"The test methods in IEC 60456 have been developed over many years and within the requirements and test methods of this standard is embodied a great deal of experience. The test methods in this standard have been developed with repeatability and reproducibility as a primary requirement. Good reproducibility is essential in achieving the highest level of test result comparability – it means that the results of tests carried out on products can be replicated within and across laboratories and even across different countries. To achieve the ability to be able to confidently compare product results between laboratories, this necessarily means that some test parameters and material specifications given in the standard are somewhat restrictive in nature, meaning that some of the test requirements are onerous and some of the equipment specified is expensive. This means that to test to the full requirements of this International Standard may at first sight not appear to be suitable for every application or test programme.

It should be recognised that this standard has been developed to specifically compare the performance of washing machines using the parameters specified. It should be understood that some of these parameters are interdependent and so altering one parameter may inadvertently alter another parameter, and so the results may not be reliable.

This annex addresses the deviations to the parameters or materials used in the test procedures laid out in this standard that are known to be undertaken by organisations testing washing machines and outlines the reasoning behind the requirements laid out in this International Standard, explaining when and why compliance with the specified requirements is crucial for obtaining statistically sound, relevant and reliable test results.

Common reasons given by organisations carrying out testing for deviations from the standard include:

- reduce the cost and complexity of testing;
- simplify tests for use in the development of new products and models, or to undertake large scale ongoing development tests;
- use materials and conditions that are assumed to better reflect local consumer use;
- carry out in-house comparative testing of products where reproducibility is less important;
- carry out alternative evaluation of a key parameter or reduction in the number of parameters that are measured.

All results for products that claim to have been tested in accordance with this standard shall meet all of the normative requirements of IEC 60456. Any results for products that have been tested using any variation to the standard shall not make any claims that tests are in

accordance with this standard or this Annex. Any test series shall not be compared to any other test series without full compliance to IEC 60456.

2.3.5.5 Other information sources

CLASP document considers "screening tests" in which the specified procedure may not necessarily be followed precisely, in order to provide a reasonable indication of energy performance at a lower cost and more quickly than in a full verification test. These tests are typically used to provide a preliminary assessment of products which are likely to fail a full verification test. Typical departures from the full procedure are that fewer replicate tests are made, laboratory or staff undertaking the tests may not be accredited, or not all of the test requirements are undertaken. These screening tests are sometimes referred to as check tests.

It is worth noting that in Australia a "check-test" is done only in NATA accredited labs and is the first Step of the formal verification procedure and is described in ad-hoc prepared Administrative Procedures.

2.4 Conclusions of the desk research

- Several sources of information from different Regions of the world are available.

- Products sampling and targeting techniques:

    1. A risk-based sampling is a selection approach for products, brands and/or models based on a set of factors related to an increased risk of failing the compliance tests. "Risk" needs to be interpreted widely, to include risks posed by poor product coverage or non-responsiveness to stakeholder complaints.

    2. The sampling strategy must be justifiable on a range of grounds. In order to avoid criticism or bias, "guidelines" detailing the criteria used for targeting products for verification tests should be published

    3. Effective products targeting is especially important when a legislation (i.e. Ecodesign of ErP) deals with a vast amount of product categories, which may not all be subject to yearly market surveillance activities

    4. According to some sources, the samples need to be representative of what is being supplied to the market and thus should be purchased from the market, rather than obtained directly from the supplier, but exception do exist: see ES* Certification Body verification procedure and the Danish procedure. Therefore it could be concluded that as long as the units of the product to be verified are randomly chosen and picked-up and are not special or premium units, they could be obtained from the manufacturer or the supplier instead of being purchased on the market. Whatever is the way the machines are gathered, all efforts should be done to select units belonging to different production batches in order to cover as much a possible the whole production of the specific model.

5. Random and targeted product selection can be successfully combined with a market share approach (see ES* Certification Body, ATLETEs and UK-MTP examples).

6. Product documentation inspection is considered and used as a product targeting technique.

- Screening techniques:

1. Apparently little mention in available literature, a part from CLASP study where few lines give a generic description.

2. Care should be taken to univocally define "what" we are talking about, because the term "screening" or "check" are sometimes referred to Step 1 of the two-stage verification procedure (in an accredited laboratory) applied almost worldwide.

3. Examples of a simplified equipment and test conditions for in situ/in shop measurements of "standby" power consumption can be found in the AU experience and the IEE SELINA project.

4. The open questions, for the power consumption measurement, are:

   → if considering the Australia experience and the outcome of the IEE SELINA project, the simplified test conditions and equipment for screen tests of power consumption measurement could become the in-house routine product selection approach for the identification of models with a higher risk of non-compliance. In other words, if and when products found apparently exceeding the legislation requirements can be considered candidates for further compliance verification through laboratory testing.
   → if and under which conditions the methodology and measurements used in store surveys - for power consumption measurement only - can be used for *in situ* screening of products to be then sent to further compliance verification through laboratory testing
   → if and under which conditions the simplified methodology and measurements could be used as an recognised method for compliance verification of power consumption measurement only (as alternative or substitute of the harmonised standard method) of simple products
   → if the use of use can be extended to

5. The more general questions, for the application of screening techniques, are:

   → could screening techniques be widely applied to more complex parameters requiring specialist skills, and even extended to measurements requiring sophisticated equipment, in a specialised laboratory?
   → is their application, beyond the simple power consumption measurement for relatively simple products, leading to actual resource savings (time, money, personnel)?.

3. The ECOPLIANT Questionnaire

3.1 Introduction

Within the ECOPLIANT project a survey was foreseen to get an overview of the market surveillance practices across Europe. In this respect, a Questionnaire was prepared in order to collect the existing good practice and procedures from MSA. In particular questions from Q7 to Q14 deal with product selection criteria and questions from Q15 to Q17 deal with screening techniques.

3.2 Product targeting

Different targeting methods can be used when selecting the products for testing. Targeting may relate to certain product categories, brands or specific models for testing. Targeting can also be based on product documentation, on risk-based approaches, on competitor/customer complaints, or the sampling can be made randomly. The questions tried to clarify the following subjects:

- criteria ('risk factor') applied by MSA to select the product categories, brand and models
- importance (weight) for each criterion, in a scale from 1 to 5
- handling of – substantiated – complaints or reports about possible non-compliant products, from outside parties
- actual use of other targeting techniques for product categories, brands and models
- acceptance of the targeting method results by another MSA
- targeting methods that a MSA has chosen not to use
- comments and recommendations.

3.2.1 *Answers to the Questionnaire*

Targeting techniques can be applied for the selection of product categories, brands in each category and specific models within each brand.

3.2.1.1 Product category selection

Q7: When your organisation establishes its market surveillance programmes, which criteria ('risk factor') do you use to select the **product categories** (product types)?

→ **Q7a**: Please also state the relevance weighting according to your view.

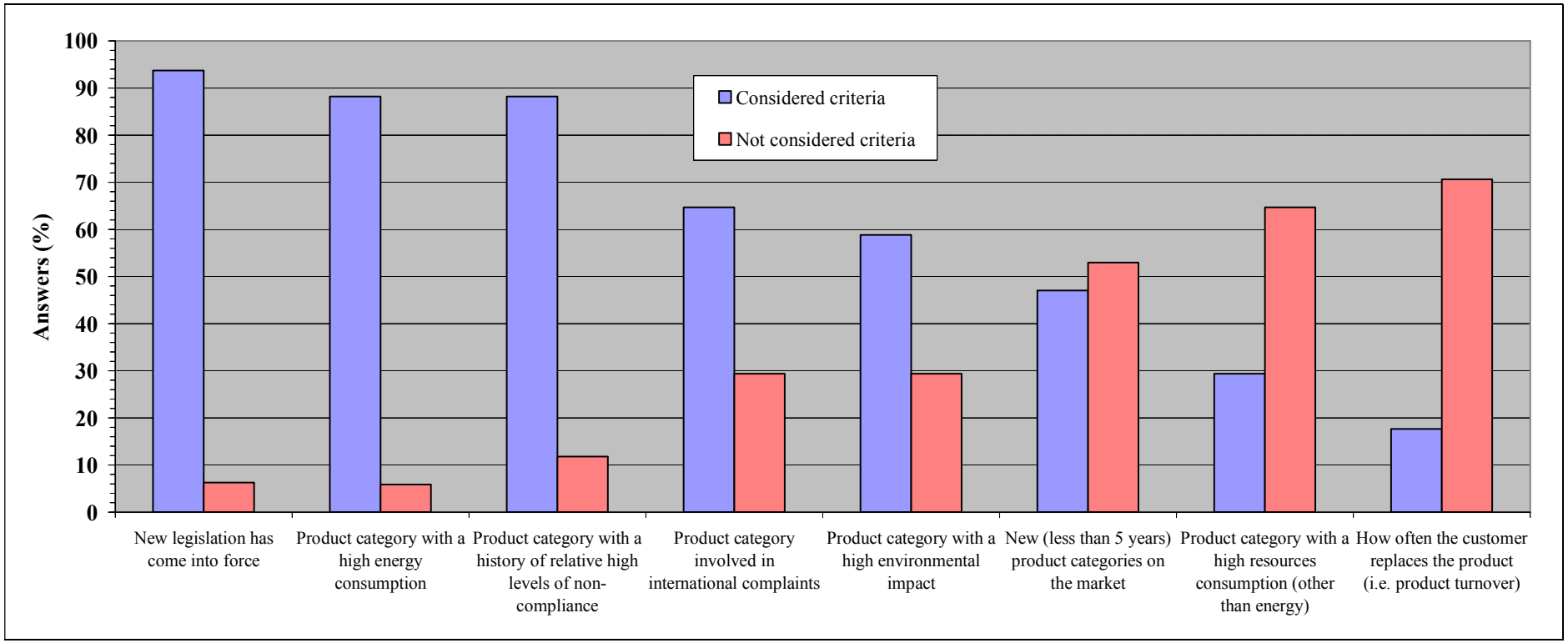
From 15 to 17 MSA answered to the first part of the question and 14 to 16 to the second part (Table 2). Considered and not-considered criteria are shown also in Figure 5 ("do not know" answers not included), listed in descending order of consideration.

The risk factor considered for product selection by more than 90% of the respondents is "*a new legislation has come into force*", followed closely by "*the high energy consumption of a product*" and by the fact that a "*product category has a history of relative high levels of non-compliance*".

Table 2: Q7, Risk factors for product categories selection [respondents 15 to 17 out of 24 MSA]

Risk factors	New legislation has come into force	Product category with a high energy consumption	Product category with a history of relative high levels of non-compliance	Product category involved in international complaints	Product category with a high environmental impact	New (less than 5 years) product categories on the market	Product category with a high resources consumption (other than energy)	How often the customer replaces the product (i.e. product turnover)
Not considered criteria (%)	6,3	5,9	11,8	29,4	29,4	52,9	64,7	70,6
Considered criteria (%)	93,8	88,2	88,2	64,7	58,8	47,1	29,4	17,6
Do not know (%)	0,0	5,9	0,0	5,9	11,8	0,0	5,9	11,8
Not considered criteria (n)								
Considered criteria (n)								
Do not know (n)								
TOTAL (number)	16	16	17	17	16	17	15	17
Average weight (number)	4,20	4,13	4,53	3,53	3,19	2,80	2,40	1,93
TOTAL (number)	15	16	15	15	16	15	15	14

Figure 5: Risk factors considered and not considered for the selection of product categories ("do not know" answers not included) [respondents: 15-17]



The global weight for each criterion – see the last row of Table 2 – is calculated considering the number of answers for each score (from 1 to 5). It is worth noting that the *energy consumption* is a highly considered criterion (by 88,2% of the respondents) and shows a high priority (score 4,13), while surprisingly the *consumption of other resources* is not (considered only by 58,8% of respondents and with a score of 2,40).

The criterion with the highest average score is "*product category has a history of relative high levels of non-compliance*" (Figure 6a), followed by "*a new legislation has come into force*" and by "*the high energy consumption of a product*". These three risk factors are also the ones showing the highest weight (%) when only scores 4+5 are considered (Figure 6b).

3.2.1.2 Brand(s) selection criteria

Q8: When your organisation establish your market surveillance projects, which criteria ('risk factor') do you use to select the **specific brands** to be tested?

→ **Q8a**: Please also state the relevance weighing according to your view.

Once the product category(ies) have been identified, a risk factors analysis can be applied also for selecting the **specific brands** to be investigated. Table 3 ranks the selection criteria for brands according to the given answers. The same results are shown in Figure 7: 16 MSA answered this part of the question.

Table 3: **Q8**, Risk factors for brand(s) selection [respondents: 16 to all points]

Risk factors	Brand with a history of non-compliance	Brand with a high market share	Brand not frequently involved in surveillance	Brand involved in international complaints	New brand (less than 5 years) on the market	Brand with a history of compliance
Not considered criteria (%)	6,3	12,5	6,3	18,8	25,0	43,8
Considered criteria (%)	87,5	87,5	87,5	81,3	75,0	43,8
Do not know	6,3	0,0	6,3	0,0	0,0	12,5
Total respondents (number)	16	15	16	16	15	16
Average weight (number)	4,50	3,53	3,31	3,88	3,13	2,63
Total respondents (number)	16	15	16	16	15	16

The risk factors considered for brands selection by about 88% of the respondents are "*brand with a history of non-compliance*", "*brand with a high market share*" and "*brand not frequently involved in surveillance*".

Figure 6a: Average weight of the single product selection criterion (in a scale from 1: least relevant to 5: most relevant) [respondents: 14-16]

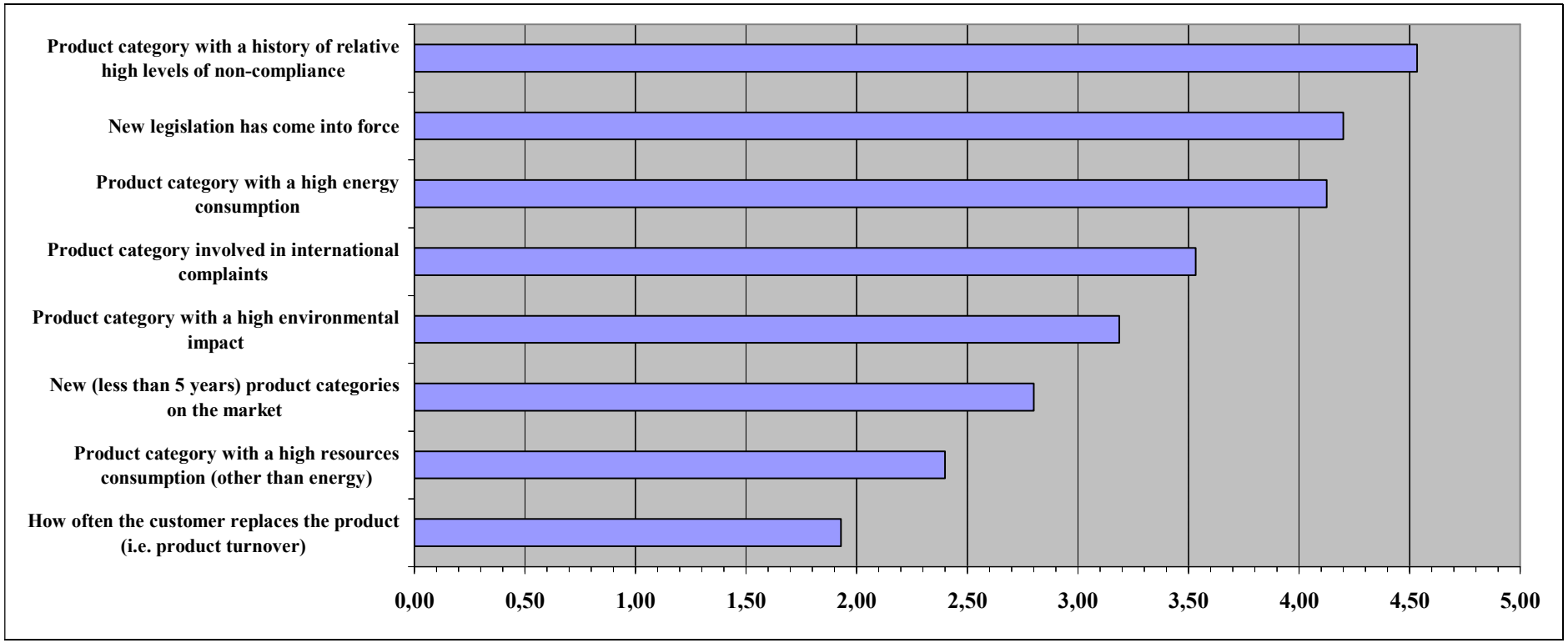


Figure 6b: Weight (%) of the single product selection criterion (only scores 4+5 in a scale from 1 to 5) [respondents: 14-16]

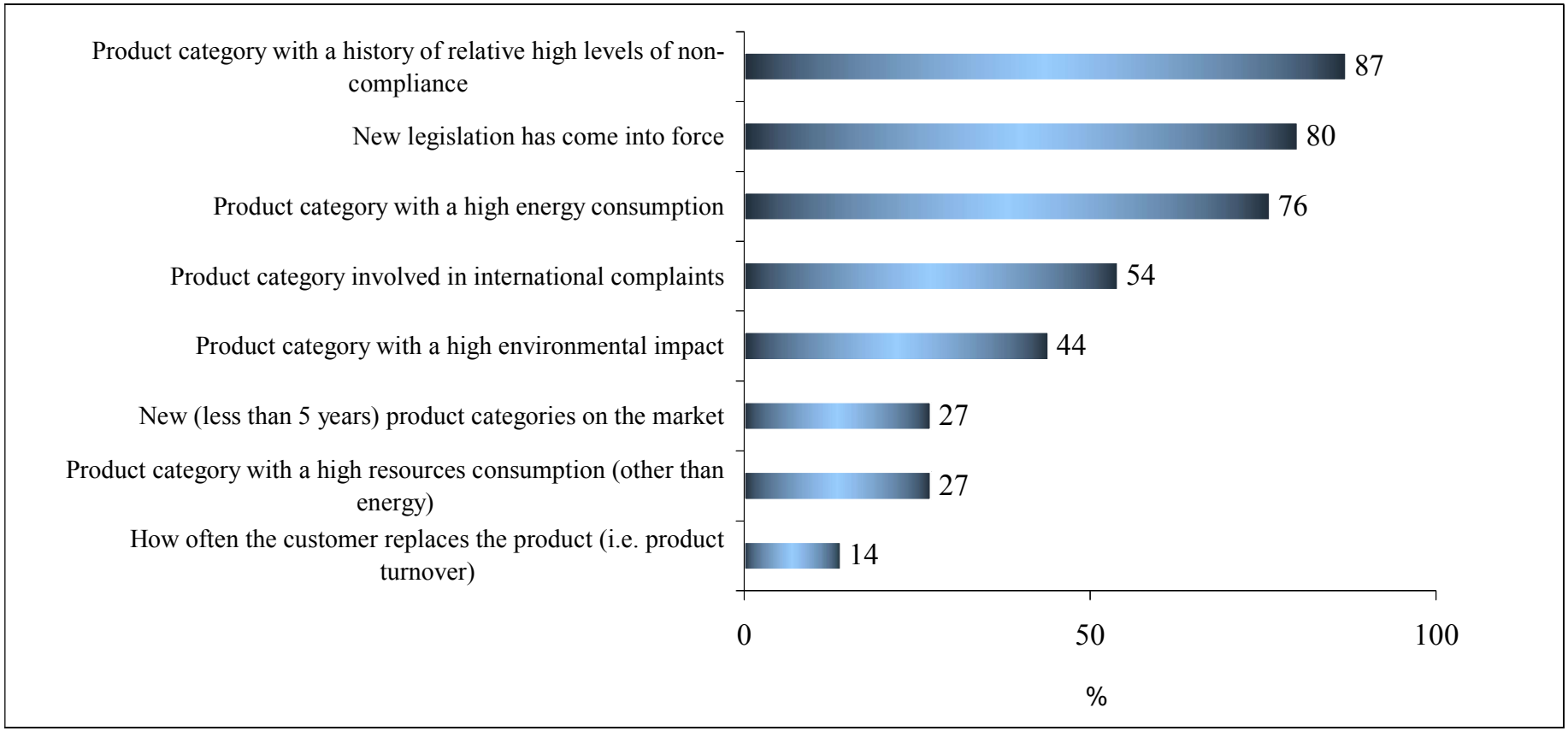
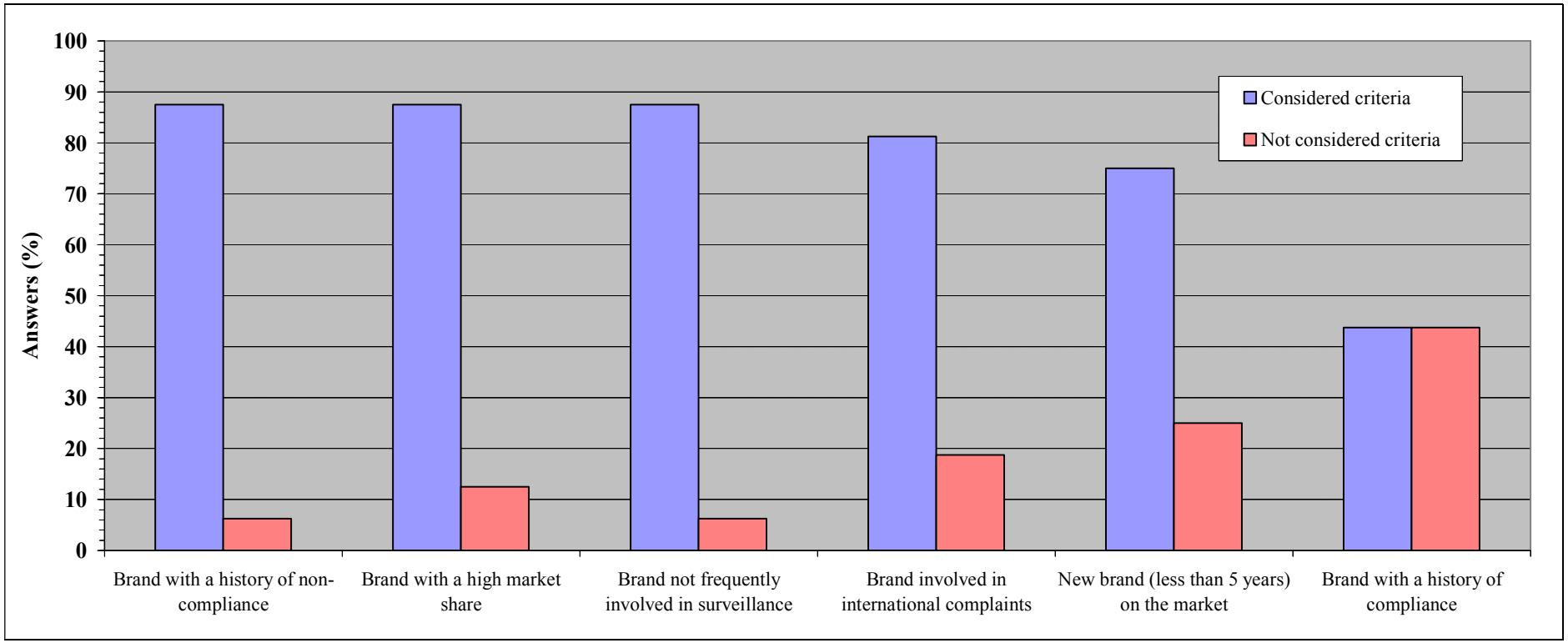


Figure 7: **Q8**, Risk factors considered and not considered for the selection of product brands ("do not know" answers not included) [respondents: 16]



The global weight for each criterion – see the last row of Table 3 and Figure 8a – is calculated considering the number of answers for each score (in a scale from 1 to 5).

It is worth noting that the "*brand with a history of non-compliance*" shows a high priority (average score 4,50), followed by "*brand involved in international complaints*" (average score 3,88) that is instead the fourth criterion in term of consideration percentage, and by "*brand with a high market share*" (average score 3,53). These three risk factors are also the ones showing the highest weight (%) when only scores 4+5 are considered (Figure 8b).

Surprisingly, the factor "*new brand (less than 5 years) on the market*" is not a priority risk factor for MSA.

3.2.1.3 Model(s) selection criteria

Q9: When your organisation establish your its market surveillance projects, which criteria ('risk factor') do you use to select the **specific models** to be tested?

→ **Q9a**: Please also state the relevance weighting according to your view.

From 15 to 17 MSA answered to Q9 and 14-15 to Q9a. In Table 4 and Figure 9 considered and not-considered model selection criteria are shown in descending order of importance.

The two most important factors, with more than 90% consideration are "*model highlighted by other member state complaints*" and "*model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance*", followed by "*model involved in international complaints*". The second answers confirms the importance of document inspection as a targeting technique, to be then followed by laboratory tests for those parameters that require testing. The first most important factor highlights on one side the apparent will of MSA to consider information coming from other Member States when setting national plans for market surveillance. However important elements such as "if and how", within a EU coordinated market surveillance, a model highlighted as (potentially) non compliant by a Member State should be analysed by that Member States or if the MSA of a different Member State could/should take care of its verification though laboratory tests.

The global weight for each criterion – see the last row of Table 4 and Figure 10a – is calculated considering the number of answers for each score (from 1 to 5) and confirms the first two most important criteria, while the third one is "*model highlighted by intelligence from consumer groups and/or individuals*" (with a score of 4,00).

When the percentage of respondents for scores 4+5 only are considered Figure 10b results. The factor "*Model highlighted by other member state complaints*" has the highest percentage (93%) followed by "*model highlighted by intelligence from consumer groups and/or individuals*" with a lower percentage (75%), while the factor "*model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance*" is only third (with 67%).

Figure 8a: **Q8a**, Average weight of the single brands selection criterion (in a scale from 1: least relevant to 5: most relevant) [respondents: 16]

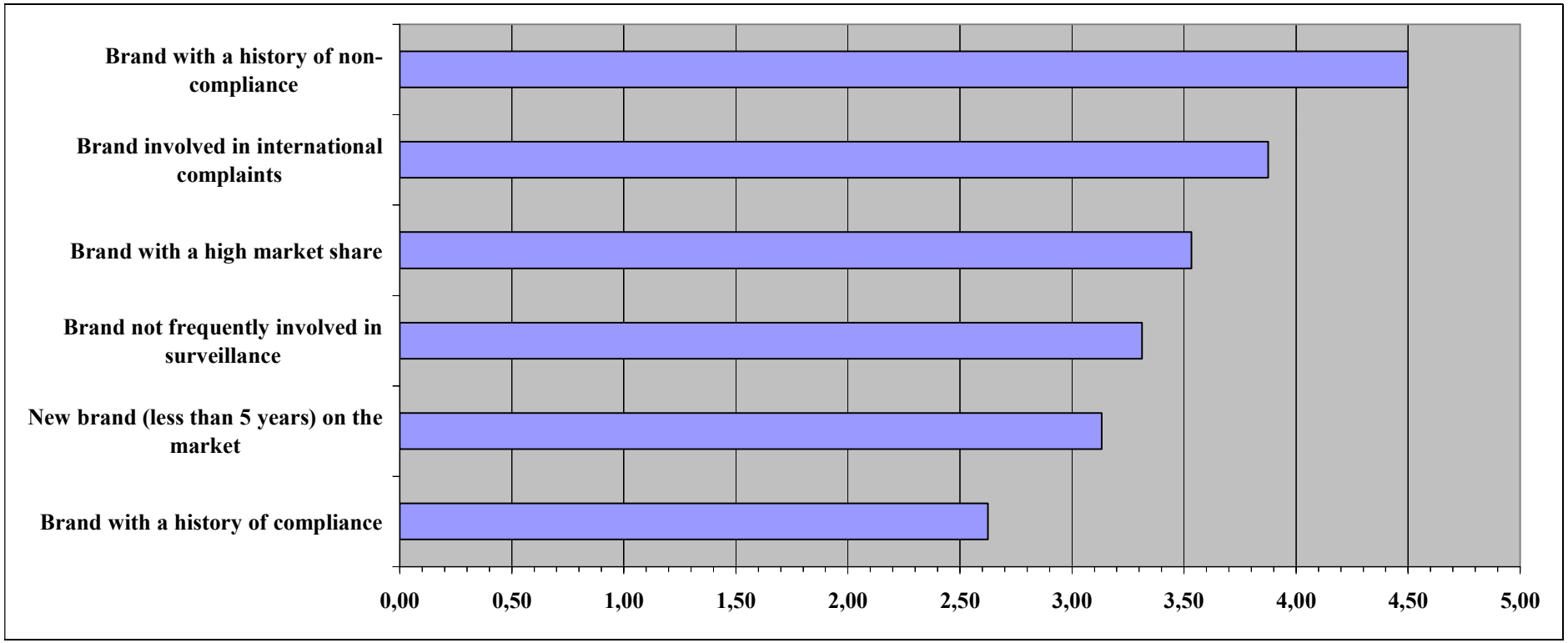


Figure 8b: **Q8a**, Weight of the single brands selection criterion (only scores 4+5) [respondents: 15-16]

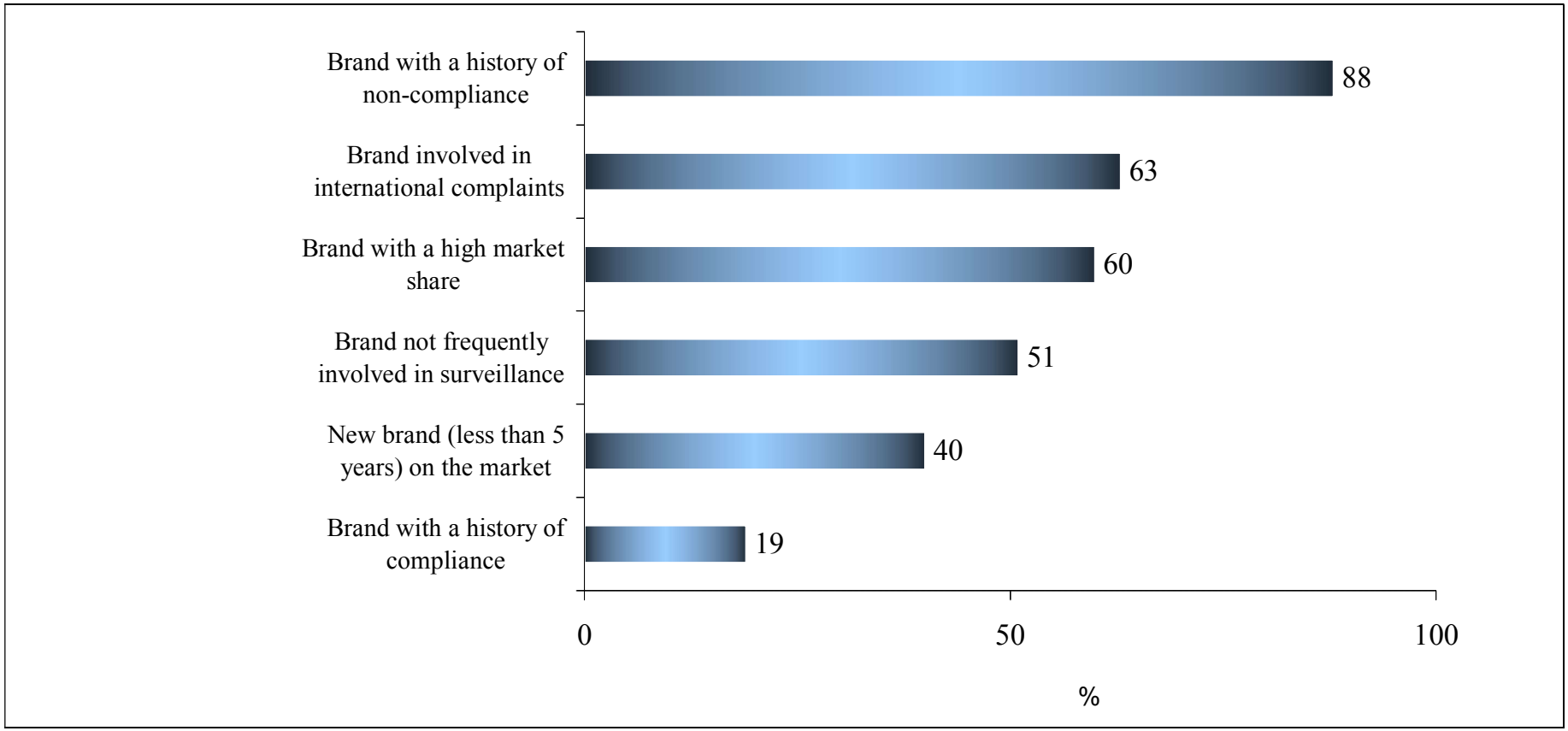


Table 4: **Q9**, Risk factors for models selection [respondents: 15-17]

Risk factors	Model highlighted by other member state complaints	Model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance	Model involved in international complaints	Model with a high market share in their product category	Model highlighted by intelligence from consumer groups and/or individuals	Model selected by random selection	Model highlighted from complaints or findings of other organisations	Model highlighted by competitor compliant	Model demonstrates by way of laboratory test reports a previous history of non-compliance	Model supported by test reports developed in labs that have declared a product compliant, which has later been found non-compliant by a MSA	Model supported by test reports developed by new laboratories
Not considered criteria (%)	6,3	6,3	6,3	12,5	12,5	23,5	13,3	18,8	25,0	37,5	62,5
Considered criteria (%)	93,8	93,8	87,5	81,3	81,3	76,5	73,3	68,8	56,3	50,0	18,8
Do not know (%)	0,00	0,00	6,25	6,25	6,25	0,00	13,3	12,5	18,8	12,5	18,8
Average weight (n)	4,20	4,00	3,73	3,53	4,00	3,43	3,73	3,20	2,87	3,00	1,86

Figure 9: **Q9**, Risk factors considered for the selection of product models [respondents: 15-17]

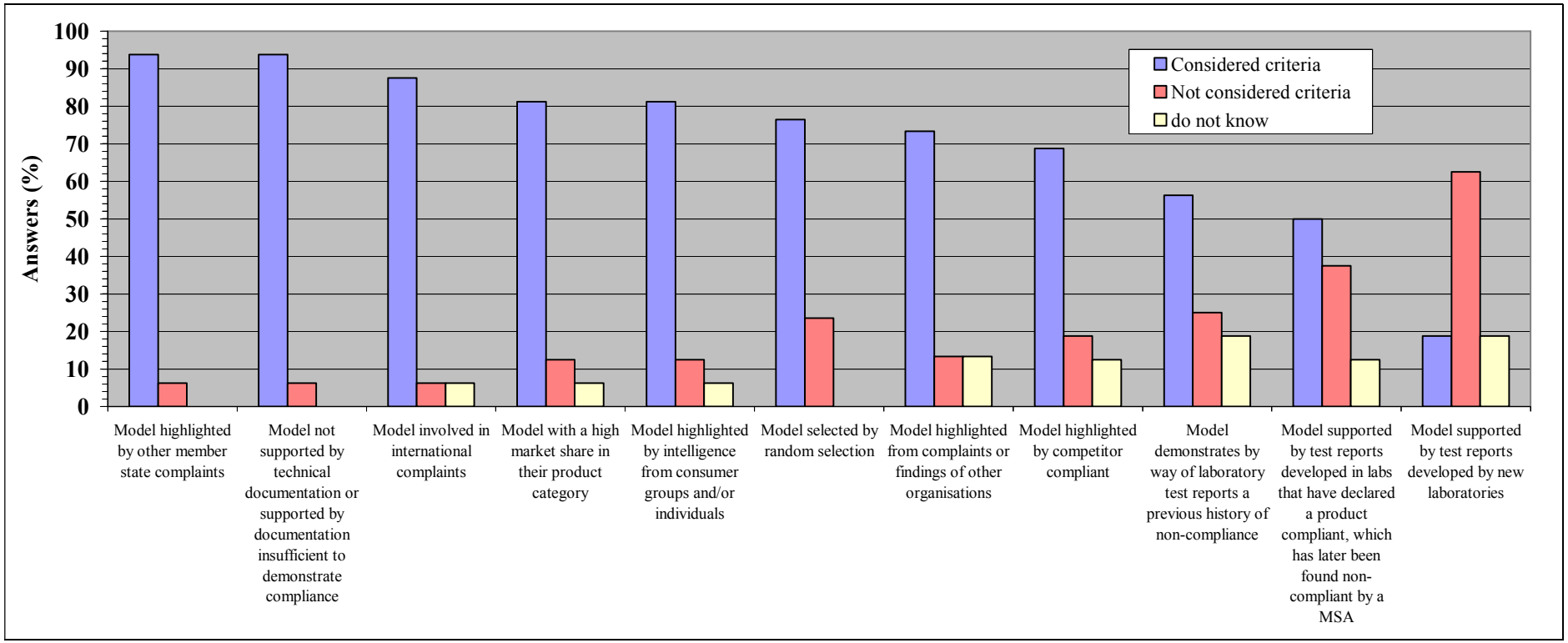


Figure 10a: **Q9a**, Weight of the models selection criterion [respondents: 15-16]

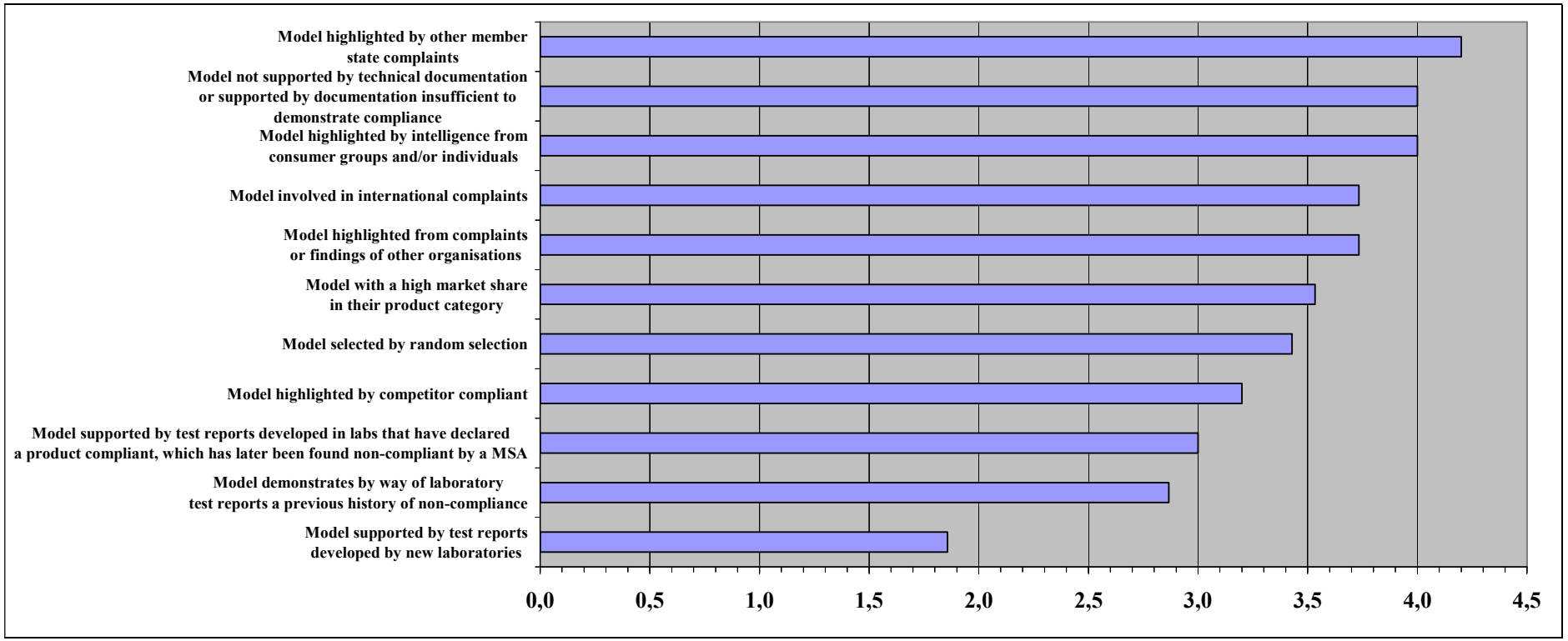
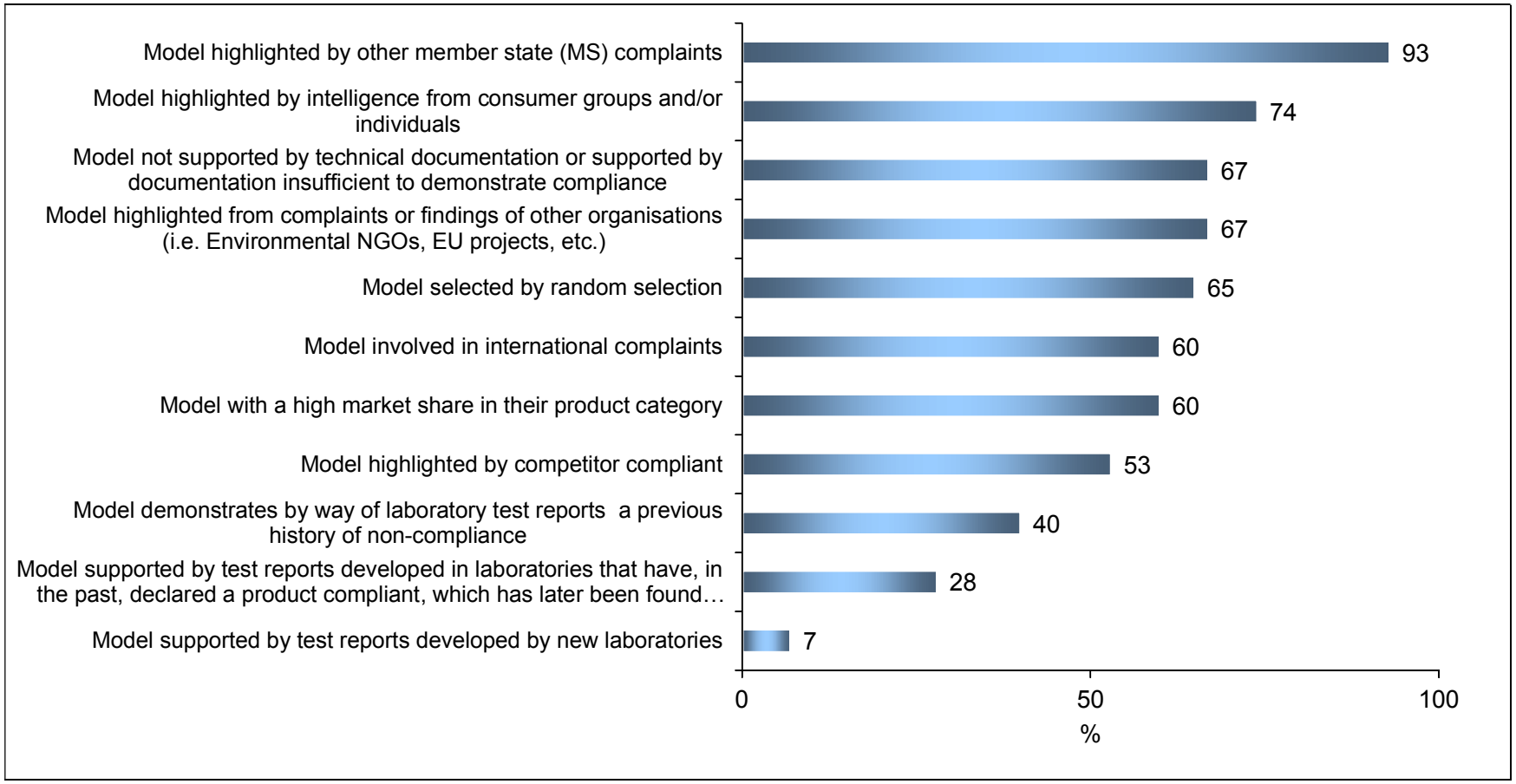


Figure 10b: **Q9a**, Weight of the single model selection criterion (only scores 4+5)



3.2.1.4 Other questions on MSA behaviour

Following questions from Q10 to Q13 deal with specific behaviour of responding MSA.

Q10: Does your organisation, as a MSA, handle "complaints", i.e. complaints or reports about possible non-compliant products, from outside parties?

→ **Q10a**: if YES: When you consider "complaints" from an outside party, do you require some kind of evidence in order to use the information?

Of the 20 respondents, 13 MSA (65%) answered positively to Q10, 4 MSA (20%) answered negatively and 3 MSA (13%) did not know: in total 7 MSA do not deal with complaints or did not answer.

Q10	Yes	No	No information available	Total
number	13	4	3	20
%	65	20	15	100

The opinion about the necessity that the complaint from external parties to be somehow substantiated (**Q10a**, below) is less clear. In fact only 2 respondent (15%) out of the 13 require an independent evidence, other 2 MSA (15%) will accept also a non-independent evidence and other 2 MSA (15%) clearly admit that no evidence is requested; the remaining 7 respondent (54%) choose the indefinite answer "it depends on the situation".

Yes, independent evidence, e.g. from a laboratory	Yes, but it does not have to be independent	No, we do not require evidence	It depends on the situation	Total
2	2	2	7	13
15%	15%	15%	54%	100%

The answers highlights two open issue: the acceptance of non-substantiated "complaints" from an outside party does not allow to effectively eliminate complaints not based on solid elements, thus creating at least a potential problem for the running of a EU coordinated market surveillance, that is reflected in the high percentage of the indefinite answer "*it depends on the situation*" that highlights perplexity among MSA.

Q11: Has your organisation, as a MSA, been working with **any other** specific methods to target the products that are most relevant for compliance testing?

Only 2 (11%) respondents out of the 20 MSA answered positively to Q11. These two organisations were then asked:

→ **Q11a**: For which products and EU legislation act have you used these targeting methods, and have you used them for targeting product categories, brands or the specific models for the following compliance testing?

The first MSA used targeting techniques for:

- Air conditioners and comfort fans (EU) No 206/2012
- Electric motors (EC) No 640/2009
- External power supplies (EC) No 278/2009
- Household dishwashers (EU) No 1016/2010
- Household washing machines (EU) No 1015/2010
- Refrigerators and freezers (EC) No 643/2009
- Televisions (EC) No 642/2009
- Lighting products in the domestic sector (EC) No 244/2009 & (EC) No 859/2009
- Standby and off mode electric power consumption (EC) No 1275/2008

Answering to the second part of Q11a, this MSA reported that *product documentation* was the targeting method but without specifying if for the selection of product category, brand and model.

The other MSA used targeting techniques for:

- External power supplies (EC) No 278/2009
- Household dishwashers (EU) No 1016/2010
- Household washing machines (EU) No 1015/2010
- Refrigerators and freezers (EC) No 643/2009
- Televisions (EC) No 642/2009
- Lighting products in the domestic sector (EC) No 244/2009 & (EC) No 859/2009
- Simple Set-Top Boxes (EC) No 107/2009
- Standby and off mode electric power consumption (EC) No 1275/2008

This MSA said that it has used *documentation, complaints, screening, previous history, market surveillance* for the selection of product category, brand and model.

A final question was asked about the acceptability of another MSA results to select the products for an own national verification action (**Q13**).

Q13: Would your organisation accept the results of a targeting method applied by another market surveillance authority to select the products for a verification action in your country?

Yes	No	It depends on the situation	No information available	Total
9	0	9	1	19
47%	0%	47%	5%	100%

9 respondents (47%) declared to be ready to accept another MSA results, other 9 (47%) selected the indefinite answer “it depends on the situation” and 2 MSAs did not answer or give information. Actually, no MSA declared to refuse the results of a targeting method applied by another MSA to select the products for a verification action in its own country, but only less that half of the respondents have given a clear positive answer, thus confirming the perplexity and precaution by some MSA.

3.2.1.5 Specific comments by MSA

Comments regarding targeting methods were asked to MSA for questions Q7, Q8, Q9 on products/brands/models selection and in Q12 and Q14.

Q7(a) Please describe possible other criteria ('risk factor') you use to select **product categories**

- We carried out simple testing of energy consumption on 6 different models and different brands randomly selected in the end of 2011. It is supposed testing specially based on national complaints and random selection not in wide range, as the budget for testing is calculated in operational cost, not specified. For the reasons above mentioned no answer are introduced for statistic examination.
- Practical criteria like:
  - the manufacturer is located in our own country, so we surely can take action when there is a non compliance situation
  - is it possible to do an indicative measurement to get in short term and by low costs a picture of the compliance/non-compliance of a product
- All other available source of data.
- High priority is assumed for applications from persons affected by the product.
- Cooperation with other Countries within the Region. Complaints and hints about non-compliant product categories.
- Manufacturer with history of non-compliance.

Q8(a) Please describe possible other criteria ('risk factor') you use to select **brands**.

MSA comments were:

- The same comments mentioned for products selection.
- Estimated sales volumes
- No experience with selecting specific brands; as said before till now our main focus is on specific product categories which we can measure in a indicative way and whose manufacturers are likely in our own country
- Brands that have an excessive marketing strategy. Cooperation with other countries within the region.
- Some large scale market surveillance projects aim to move a particular industry, and therefore all brands, in one direction at the same time.

Q9(a). Please describe possible other criteria ('risk factor') you use to select specific **models**.

MSA comments were:

- The same comments mentioned for products selection.
- No experience; see before for method for selection which is focussed on product categories and when possible location of manufacturer in own country to be sure we ca n action when necessary
- It must be noted that risk factor and weighting are subjective and used alongside other intelligence and information and not used in isolation. For instance although competitor complaints are considered and relevant, a competitor complaint alone

would not necessarily result in targeting a product for testing. It should also be noted that some targeting methods such as complaints are reactive, but still valid.

Q10(a) Handling of complaint: Do you have some recommendations or results that you would like to share with the Ecopliant project?

MSA recommendations were:

- It is important to select products based on risk analysis, so we look to the most important products first. Focusing on manufacturers based on some tests of their products, and try to realize that they take their own responsibility for all their products, is another way to get a large effect on the level of compliance with relative less effort.
- When possible, it is requested a test performed by accredited laboratory.

Q12: Are there targeting methods described in the tables above that your organisation has chosen not to use, and if so why?

MSA answers were:

- International complaints or test results are rare, and often the products in our markets have different model numbers, thus being legally different products.
- We do not have laboratory facilities, thus targeting methods involving testing are beyond our capability.
- Aspects as costs and certainty to be able to take action when necessary, are also important for us.
- Due to time-lag when implementing the Directives and the Regulations our experience is short and we guess we miss some procedures.
- The voluntary certification or testing by a third party is not always evidence of compliance. According to our experience, a large percentage of products found in non-compliance with the requirements already had certification by a third party, but it is not clear whether this certificate covers the inspected product.

Q14: Does your organisation have recommendations or results on product targeting methods that you would like to share with the Ecopliant project?

MSA recommendations/comments were:

- Targeting techniques should be selected taking into consideration the specific situation of each product in the country
- It is important to realize that manufacturers have to take their responsibility to bring products on the market which are compliant. Therefore by product targeting we have to realize that not only the most risky products are being chosen but also that the manufacturers for all the different product categories, come in the picture. Take action in the direction of some important manufacturers, can have a large effect on the behaviour of other manufacturers in the same branch of industry.
- From our cooperation with the Nordic countries we know that <country X > often does document inspection when a new Regulation is carried out. This way they gain two things in one task: information to the producers about the formal requirements and a overview of the market which are useful when consider compliance test later on. We think this approach seems rational.
- We publish all results on ICSMS.

3.2.2 *Summary and conclusions about product selection criteria*

3.2.2.1 Summary of selection criteria for product categories

In Table 5 the questionnaire answers for the targeting methods for product category (product type) selection are summarised in decreasing order of the average weight.

Table 5: Targeting methods for product category (product type) selection

Criteria	Already considered by MSA (Q7)	Average weight (Q7a)
Product category with a history of relative high levels of non-compliance	Considered = 88,2% Not consid. = 11,8% N.a. = 0%	4,53
New legislation has come into force	Considered = 93,8% Not consid. = 6,3% N.a. = 0%	4,20
Product category with a high energy consumption	Considered = 88,2% Not consid. = 5,9% N.a. = 5,9%	4,13
Product category involved in international complaints	Considered = 64,7% Not consid. = 29,4% N.a. = 5,9%	3,53
Product category with a high environmental impact	Considered = 58,8% Not consid. = 29,4% N.a. = 11,8%	3,19
New (less than 5 years) product categories on the market	Considered = 46,1% Not consid. = 52,9% N.a. = 0%	2,80
Product category with a high resources consumption (other than energy)	Considered = 29,4% Not consid. = 64,7% N.a. = 5,9%	2,40
How often the customer replaces the product (i.e. product turnover)	Considered = 17,6% Not consid. = 70,6% N.a. = 11,8%	1,93

- When each national organisation establishes its market surveillance procedure, the three main criteria that are used to the greatest extent to select the specific products with a higher risk of non-compliance to be tested are as follows (the fourth criterion is presented to show the difference in the percentage of use):
  - New legislation has come into force (93,8%)
  - Product category with a high energy consumption (88,2%)
  - Product category with a history of relative high levels of non-compliance (88,2%)
  - Product category involved in international complaints (64,7%).

- The factors that the respondents consider most important (on a scale of 1 to 5, where 5 is very important and 1 is least important) to take into account when selecting the specific product category for verification testing, in terms of the average weighted

score[10] for the first criteria, are:

- Product category with a history of relative high levels of non-compliance (4,53)
- New legislation has come into force (4,20)
- Product category with a high energy consumption (4,13).
- Product category involved in international complaints (3,53).

The relative importance of each criterion is different, but the most important criteria are the same.

- Criteria that the respondents do not consider as important to be taken into account compared to other criteria are:
  - New (less than 5 years) product categories on the market (47,1% or score 2,80)
  - Product category with a high resources consumption (other than energy) (29,4% or score 2,40)
  - How often the customer replaces the product (i.e. product turnover) (17,6% or score 1,93).

It is surprising that a high resources consumption, other than energy, is not considered an important selection criterion for 70% of the respondents. The reasons for this decision should be better investigated, but is very likely liked to the predominant focus of the Member States MSA on the energy consumption more than on other not less important aspect of products.

3.2.2.2 Summary of selection criteria for brands

In Table 6 the questionnaire answers for the targeting methods for brands selection are summarised in decreasing order of the average weight.

Table 6: Targeting methods for brands selection

Criteria	Already considered by MSA (Q8)	Average weight (Q8a)
Brand with a history of non-compliance	Considered = 87,5% Not consid. = 6,3% N.a. = 6,3%	4,50
Brand involved in international complaints	Considered = 81,3% Not consid. = 18,8% N.a. = 0%	3,88
Brand with a high market share	Considered = 87,5% Not consid. = 12,5% N.a. = 0%	3,53
Brand not frequently involved in surveillance	Considered = 87,5% Not consid. = 6,3% N.a. = 6,5%	3,31
New brand (less than 5 years) on the market	Considered = 75,0% Not consid. = 25,0% N.a. = 0%	3,13
Brand with a history of compliance	Considered = 43,8% Not consid. = 43,8% N.a. = 12,5%	2,63

[10]The average weighted score is calculated by multiplying the number of respondent to each score and then averaging the results.

- The four criteria ('risk factors') that are used to the greatest extent by MSA to select the specific brands to be tested are:
  - Brand not frequently involved in surveillance (87,5%)
  - Brand with a high market share (87,5%)
  - Brand with a history of non-compliance (87,5%)
  - Brand involved in international complaints (81,3%)

- The factors that the respondents consider most important (on a scale of 1 to 5, where 5 is very important and 1 is least important) to take into account when selecting the specific brands to be tested in terms of the average weighted score for the first four criteria are:
  - Brand with a history of non-compliance (4,50)
  - Brand involved in international complaints (3,88)
  - Brand with high market share (3,53)
  - Brand not frequently involved in surveillance (3,41).

  For brands selection the ranking according to their average weighted score allows a better differentiation of the three main criteria compared to the reported percentage of use, with the history of the brand being the most important risk factor.

- One criterion that the respondents do not consider as important to be taken into account compared to other criteria is whether the brand is:
  - brand with a history of compliance: only two out of ten respondents (19%) consider this to be an important selection criterion.

3.2.2.3 Summary of selection criteria for models

In Table 7 the questionnaire answers for the targeting methods for models selection are summarised in decreasing order of the average weight.

- The criteria ('risk factors') that are used to the greatest extent by MSA to select the specific models to be tested are:
  - Model highlighted by other member state complaints (93,8%)
  - Model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance (93,8%)
  - Model involved in international complaints (87,5%)
  - Model with a high market share in their product category (81,3%).
  - Model highlighted by intelligence from consumer groups and/or individuals (81,3)
  - Models selected by random selection (76,5).

- The factors that the respondents consider most important (on a scale of 1 to 5, where 5 is very important and 1 is least important) to take into account when selecting the specific brands to be tested (in terms of the average weighted score for each individual criterion) are: are:
  - Model highlighted by other member state complaints (4,20)
  - Model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance (4,0)
  - Model highlighted by intelligence from consumer groups and/or individuals (4,0)

- Model involved in international complaints (3,73)
- Model highlighted from complaints or findings of other organisations (3,73)
- Models selected by random selection (3,53),

- Criteria that the respondents do not consider as important to be taken into account compared to other criteria is whether the model is:
  - Model demonstrates by way of laboratory test reports a previous history of non-compliance (56,3%)
  - Model supported by test reports developed in labs that have declared a product compliant, which has later been found non-compliant by a MSA (50%)
  - Model supported by test reports developed by new laboratories (19,8%).

Table 7: Targeting methods for models selection

Criteria	Already considered by MSA (Q9)	Average weight (Q9a)
Model highlighted by other member state (MS) complaints	Considered = 93,8% Not consid. = 6,3% N.a. = 0%	4,20
Model highlighted by intelligence from consumer groups and/or individuals	Considered = 81,3% Not consid. = 12,5% N.a. = 6,25%	4,00
Model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance	Considered = 93,8% Not consid. = 6,3% N.a. = 0%	4,00
Model involved in international complaints	Considered = 87,5% Not consid. = 6,3% N.a. = 6,25%	3,73
Model highlighted from complaints or findings of other organisations (i.e. environmental NGOs, EU projects, etc.)	Considered = 73,3% Not consid. = 13,3% N.a. = 13,3%	3,73
Model with a high market share in their product category	Considered = 81,3% Not consid. = 12,5% N.a. = 6,25%	3,53
Model selected by random selection	Considered = 76,5% Not consid. = 23,5% N.a. = 0%	3,43
Model highlighted by competitor compliant	Considered = 68,8% Not consid. = 18,8% N.a. = 3,20%	3,20
Model supported by test reports developed in laboratories that have, in the past, declared a product compliant, which has later been found non-compliant by a MSA	Considered = 50,0% Not consid. = 37,5% N.a. = 3,0%	3,00
Model demonstrates by way of laboratory test reports a previous history of non-compliance	Considered = 56,3% Not consid. = 25,0% N.a. = 2,87%	2,87
Model supported by test reports developed by new laboratories	Considered = 18,8% Not consid. = 62,5% N.a. = 1,86%	1,86

3.2.2.4 Comparison with internationally applied selection factors

In Table 8a a comparison between the risk factor criteria and relevant weight proposed in Australia and the ECOPLIANT questionnaire answers is done, to assess how the importance of similar targeting criteria is judged in the two regions. The weight, going from -5 to 25, given to each risk factor in Australia has been converted in a scale from 1 to 5 to facilitate the comparison with the same scale used in the project survey.

In order to better appreciate in a larger scale the difference between the importance given to each criterion in the two Regions, Table 8a has been re-calculated: the weight from 1 to 5 given by the EU MSA have been converted to a scale from -5 to 25 as applied in Australia. Results are given in Table 8b.

A part from some specific criteria applicable only to the EU situation, the major differences in the targeting techniques between European and Australian MSA are:

- very high importance given in the Australian approach to the complaints from external stakeholders (competitors, consumers, NGOs, individual), both national and international, that are sufficient to make a product category/brand/model be eligible for compliance verification testing, but only if the complaints is substantiated by an independent evidence
- lower importance given in the Australian approach to product categories and brands with history of relative high levels of non-compliance. This is probably a consequence of the long experience of market surveillance in Australia, leading to a reduction of the non-compliance of product categories and brands
- lower importance given in the Australian approach to the relative higher energy consumption of specific product categories and brands. Again the explanation is very likely the same as for the previous point: when market surveillance becomes a routine exercise product categories with a higher energy consumption are almost regularly checked, thus decreasing the importance of this factor
- lower importance given in the Australian approach to brands/models market share (but market share is more important for models than for brands). Again the explanation is probably the same as the previous point
- Lower priority is given to new product categories and brands by both the EU MSA and the Australian scheme
- About the same (medium) importance is given to the quality and credibility of the test laboratories that support with their test results the compliance/non-compliance of models. However it should be noted that in Australia the test report from an accredited laboratory is necessary for allowing the specific model to be placed on the market, while in the EU independent (accredited) laboratories are used for compliance verification purposed by MSA
- Random selection of the models is not applied in Australia, while it is used by the US-DoE for the verification of the compliance of at least 50% of the models with the Energy Star requirements. For the EU MSA this criterion has a medium priority.

Table 8a: Comparison of the importance for the product/model/brand selection criteria in Australia and EU MSA (AU vs. EU MSA)

ECOPLIANT SURVEY	Average score	Weight	Recalculated weight*	AUSTRALIA MARKET SURVEILLANCE
Products				
Product category with a history of relative high levels of non-compliance	4,53	0-10	0-2	7. Product categories with comparatively high levels of non-compliance
New legislation has come into force	4,20	n.a.	n.a.	not applicable to Australian system
Product category with a high energy consumption	4,13	0-5	0-1	4. Product categories with the highest greenhouse gas emissions
Product category involved in international complaints	3,53	25 10 5	5 2 1	1c. Intelligence from overseas testing programs (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Product category with a high environmental impact	3,19	0-5	0-1	4. Product categories with the highest greenhouse gas emissions
New (less than 5 years) product categories on the market	2,80	0-10	0-2	11. New product categories. Less than 5 years = 0-10/longer than 5 years = 0
Product category with a high resources consumption (other than energy)	2,40	n.a.	n.a.	Water consumption is addressed by a specific different scheme in Australia
How often the customer replaces the product (i.e. product turnover)	1,93	n.a.	n.a.	not applicable to Australian system
Brands				
Brand with a history of non-compliance	4,50	5	1	3. Brands with a history of non-compliance
Brand involved in international complaints	3,88	25 10 5	5 2 1	1c. Intelligence from overseas testing programs (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Brand with a high market share	3,53	0-10	0-2	2. Models with a high market share
Brand not frequently involved in surveillance	3,31	5	1	5. New Brands or brands with limited exposure to the Program
New brand (less than 5 years) on the market	3,13	5	1	5. New Brands or brands with limited exposure to the Program
Brand with a history of compliance	2,63	-5	-1	6. Brands with a history of passing check testing

Models				
Model highlighted by other member state complaints	4,20	n.a.	n.a.	not applicable to Australian system
Model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance	4,00	n.a.	n.a.	not applicable to Australian system: models with insufficient documentation have no access to the market
Model highlighted by intelligence from consumer groups and/or individuals	4,00	25 10 5	5 2 1	1b. Intelligence from consumer groups and individuals (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Model involved in international complaints	3,73	25 10 5	5 2 1	1c. Intelligence from overseas testing programs (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Model highlighted from complaints or findings of other organisations	3,73	25 10 5	5 2 1	1b. Intelligence from consumer groups and individuals (- Supported by independent evidence; - Supported by non-independent evidence; - Without evidence)
Model with a high market share in their product category	3,53	0-10	0-2	2. Models with a high market share
Model selected by random selection	3,43	n.a.	n.a.	not applicable to Australian system, but used in USA for Energy Star compliance verification by DoE
Model highlighted by competitor complaints	3,20	25 10 5	5 2 1	1a. Complaints from competitors (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Model supported by test reports developed in labs that have declared a product compliant, which has later been found non-compliant by a MSA	3,00	5-10	1-2	8. Models supported by test laboratories with a past history of failing check tests
Model demonstrates by way of laboratory test reports a previous history of non-compliance	2,87	n.a.	n.a.	not applicable to Australian system
Model supported by test reports developed by new laboratories	1,86	10	2	10. Models supported by test laboratories without a past history

AU weight	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
***recalculated**	**-1,00**	**-0,80**	**-0,60**	**-0,40**	**-0,20**	**0,00**	**0,20**	**0,40**	**0,60**	**0,80**	**1,00**	**1,20**	**1,40**	**1,60**	**1,80**	**2,00**
AU weight	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	--
***recalculated**	**2,20**	**2,40**	**2,60**	**2,80**	**3,00**	**3,20**	**3,40**	**3,60**	**3,80**	**4,00**	**4,20**	**4,40**	**4,60**	**4,80**	**5,00**	--

Table 8b: Comparison of the importance for the product/model/brand selection criteria in Australia and EU MSA (EU MSA vs AU)

ECOPLIANT SURVEY	Average score	Recalculated score*	Weight	AUSTRALIA MARKET SURVEILLANCE
Products				
Product category with a history of relative high levels of non-compliance	4,53	22,7	0-10	7. Product categories with comparatively high levels of non-compliance
New legislation has come into force	4,20	21	n.a.	not applicable to Australian system
Product category with a high energy consumption	4,13	20,7	0-5	4. Product categories with the highest greenhouse gas emissions
Product category involved in international complaints	3,53	17,7	25 10 5	1c. Intelligence from overseas testing programs (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Product category with a high environmental impact	3,19	16	0-5	4. Product categories with the highest greenhouse gas emissions
New (less than 5 years) product categories on the market	2,80	14	0-10	11. New product categories. Less than 5 years = 0-10/longer than 5 years = 0
Product category with a high resources consumption (other than energy)	2,40	12	n.a.	Water consumption is addressed by a specific different scheme in Australia
How often the customer replaces the product (i.e. product turnover)	1,93	9,7	n.a.	not applicable to Australian system
Brands				
Brand with a history of non-compliance	4,50	22,5	5	3. Brands with a history of non-compliance
Brand involved in international complaints	3,88	19,4	25 10 5	1c. Intelligence from overseas testing programs (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Brand with a high market share	3,53	17,7	0-10	2. Models with a high market share
Brand not frequently involved in surveillance	3,31	16,6	5	5. New Brands or brands with limited exposure to the Program
New brand (less than 5 years) on the market	3,13	15,7	5	5. New Brands or brands with limited exposure to the Program
Brand with a history of compliance	2,63	13,2	-5	6. Brands with a history of passing check testing
Models				
Model highlighted by other member state complaints	4,20	21	n.a.	not applicable to Australian system

Model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance	4,00	20	n.a.	not applicable to Australian system: models with insufficient documentation have no access to the market
Model highlighted by intelligence from consumer groups and/or individuals	4,00	20	25 10 5	1b. Intelligence from consumer groups and individuals (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Model involved in international complaints	3,73	18,7	25 10 5	1c. Intelligence from overseas testing programs (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Model highlighted from complaints or findings of other organisations	3,73	18,7	25 10 5	1b. Intelligence from consumer groups and individuals (- Supported by independent evidence; - Supported by non-independent evidence; - Without evidence)
Model with a high market share in their product category	3,53	17,7	0-10	2. Models with a high market share
Model selected by random selection	3,43	17,2	n.a.	not applicable to Australian system, but used in USA for Energy Star compliance verification by DoE
Model highlighted by competitor complaints	3,20	16	25 10 5	1a. Complaints from competitors (– Supported by independent evidence; – Supported by non-independent evidence; – Without evidence)
Model supported by test reports developed in labs that have declared a product compliant, which has later been found non-compliant by a MSA	3,00	15	5-10	8. Models supported by test laboratories with a past history of failing check tests
Model demonstrates by way of laboratory test reports a previous history of non-compliance	2,87	14,4	n.a.	not applicable to Australian system
Model supported by test reports developed by new laboratories	1,86	9,3	10	10. Models supported by test laboratories without a past history

*see Table 8a

3.2.2.5 Conclusions on product targeting

The main conclusions that can be drawn by the MSA answers to the questions about product targeting are:

- MSAs are more focused on product energy consumption than on the consumption of other resources and the overall products environmental impact. This could be due to the emphasis given to energy consumption and saving by the 20% target in energy efficiency. On the other side it is known that the energy consumption is a relatively simple parameter to be measured in a verification test, compared for example to functional performances. But energy consumption and functional performance(s) are in most cases strongly linked. Thus the apparent lower attention given to the verification of functional performance(s) can lead in the best case to products with a high energy efficiency but poor performance being considered fully compliant with the ecodesign (and energy labelling) legislation on the basis of an incomplete check; or in the worst case to products with a higher energy consumption when used by consumers in real life to compensate for the insufficient (but not verified) functional performance(s).

- MSAs are apparently more in favour of selecting products that can be measured in a indicative way, i.e. without following the sometimes complex test conditions and procedures defined in (harmonised) standards, and where manufacturers are likely located in their country.

- MSAs are more in favour of targeting techniques resulting in a large effect on the level of compliance for the investigated product(s) with a relative low effort.

- Document inspection is applied as an alternative targeting technique by some MSA. This choice is considered having a twofold outcome: provide information to the producers about the formal requirements and an overview of the market which are useful when consider compliance test later on.

- More than half (65%) of MSAs declare to take into consideration complaints or reports about possible non-compliant products from outside parties, but there is an unclear position about the necessity that the complaint should be somehow substantiated: 2 respondent (15%) out of the 13 having answered to the specific question require an independent evidence, other 2 MSAs accept also a non-independent evidence and for other 2 MSAs no evidence is requested; the remaining half of the respondents (7 or 54%) have chosen the more vague answer "it depends on the situation". For one MSA international complaints or test results are rare, and often the products in the national markets have different model numbers, thus being legally different products. Two issues remain open: the acceptance of non-substantiated "complaints" from an outside party does not allow to effectively eliminate complaints not based on solid elements, thus creating at least a potential problem for the running of a EU coordinated market surveillance, that is reflected in the high percentage of the indefinite answer "*it depends on the situation*" highlighting some perplexity among MSAs.

- About half (47%) of the MSAs would accept the results of a targeting method applied by another MSA, but the other half (47%) has chosen the more indefinite

answer “it depends on the situation”. Actually, no MSA declared to refuse the results of a targeting method applied by another MSA to select the products for a verification action in its own country, but only less that half of the respondents have given a clear positive answer, thus confirming the perplexity and precaution by some MSA.

- One MSA has commented that risk factor and weighting are subjective and used alongside other intelligence and information and not used in isolation. For instance although competitor complaints are considered and relevant, a competitor complaint alone would not necessarily result in targeting a product for testing. It should also be noted that some targeting methods such as complaints are reactive, but still valid.

- Lack of laboratories and aspects such as costs were highlighted as barriers to the use of targeting techniques for selection of products for testing, although they are more general barriers to products testing and not to products selection.

- The experience of one MSA shows that the voluntary certification or testing by a third party is not always evidence of compliance. According to the experience, a large percentage of products found in non-compliance with the requirements already had certification by a third party.

- About 14-15 MSA declare to have used specific criteria ('risk factor') to select product categories, brands and specific models for compliance verification testing when establishing their national market surveillance programmes. In this respect:

  - criteria that are used to the greatest extent to select the specific product categories with a higher risk of non-compliance are:
    (i) New legislation has come into force (93,8% or average score 4,13)
    (ii) Product category with a high energy consumption (88,2% or 4,53)
    (iii) Product category with a history of relative high levels of non-compliance (88,2% or 4,53)

  - criteria that are used to the greatest extent to select the specific brands with a higher risk of non-compliance are:
    (i) Brand not frequently involved in surveillance (87,5% or 3,31)
    (ii) Brand with a high market share (87,5% or 3,53)
    (iii) Brand with a history of non-compliance (87,5% or 4,50)
    (iv) Brand involved in international complaints (81,3% or 3,88)

  - criteria that are used to the greatest extent to select the specific models with a higher risk of non-compliance are:
    (i) Model highlighted by other member state complaints (93,8% or 4,20)
    (ii) Model not supported by technical documentation or supported by documentation insufficient to demonstrate compliance (93,8% or 4,0)
    (iii) Model involved in international complaints (87,5% or 3,73)
    (iv) Model highlighted by intelligence from consumer groups and/or individuals (81,3 or 4,0).

3.3 Screening techniques

According to the ECOPLIANT project 'screening techniques' are *preliminary and possibly lower cost tests to assess the likelihood that a model will fail compliance testing, before deciding whether to proceed with full compliance testing.*

3.3.1 *Answers to the Questionnaire*

A set of questions (Q15a-k to Q17) was asked about the actual use and effectiveness of screening tests:

- Q15a-k focuses on different aspects of the actual application of such techniques (products, tested parameters, type of technique and used equipment, location, personnel and its training, costs, results accuracy, etc.)
- Q16 and Q17 focuses on barriers to actual use and sharing of results among MSA.

The opinion and expectations and the actual experience of some MSAs is using screening techniques are presented in the following paragraphs. The answers are not presented in the order arranged in the Questionnaire, but are divided into generic questions about the knowledge and potential acceptance of such techniques and more specific questions about their actual use by MSAs.

3.3.1.1 General questions

Q15. Does your organisation have experience of any 'screening technique'?

5 MSAs answered positively to the initial question about national experiences with a '*screening technique*' for market surveillance purposes, 14 MSAs have no experience of such techniques, 1 MSA answered that no information is available and 4 MSAs have not answered:

	Yes	No	No information available	Total
number	5	14	1	24
%	25%	70%	5%	100%

Q16. What barriers, if any, does your organisation, as a MSA, experience for using screen testing techniques, e.g. legal, cost to purchase test equipment, technical expertise etc. ? Please describe

Out of the 24 MSAs, 11 MSAs gave an answer (although some answered that they have no experience), 13 MSAs did not. Answers are reported below with in bold the answers of the 5 MSAs having answered about their actual experience with screening techniques:

- Lack of data and in some extent of technical expertise.
- No legal barriers, cost to purchase test equipment in the case of using.
- (ii) **None yet, but there could be a barrier if an economic operator refuses to withdraw the product by the results of screening tests. But it hasn't happened yet. And if it will, then we naturally take the product to full-compliance testing**.

- Legal problem of passing a screen test and having to justify full testing, and problem of false positive/false negative results. When there is a standardized test, normally no effective screen test is available because none has been developed for the same parameter. Screen testing would be significant when the result will always tend to have inaccuracies to one side, so only correct results and false positives but no false negatives result.
- We don't have enough experience.
- Technical expertise, test equipment are always restricted.
- (iii) **Actually the only (legal) barrier is the uncertainty there is when you want take action based on screening results; the manufacturer can require measurements that are performed by a official institute**.
- Our budget for testing is limited.
- (iv) **None**
- Risk of wrong results from screening techniques, maybe due to different screening equipment in different countries. Lack of methods.
- (v) **Parameters for screening techniques are pre-determined and screening is only used in the context and construct of the legislation**.

In the above answers the roman number in brackets is the identification number of the MSA having answered about their actual experience with screening techniques, to allow a comparison of each national experience. Comparing the answers, it is clear that MSAs not having used screening techniques have more concerns in their use compared to those MSAs having already used such techniques.

Q17. Would your organisation accept the results of a screening technique developed by another market surveillance authority as a proof that the model under evaluation **is very likely compliant**, and thus your organisation can exclude it from any market surveillance action?

Yes	No	It depends on the situation	No information available	Total
6	1	12	1	20
30%	5%	60%	5%	100%

It is worth noting that only 2 MSAs, out of the 6 accepting the results of a screening technique developed by another MSA, are among the 5 having used some specific screening techniques. The other 3 MSAs have answered that "it depends on the situation".

In other words, apparently some of the MSAs with an actual experience in the use of screening techniques would be very cautious in applying results achieved by another MSA. This could be a severe barrier to the use of screening techniques within a EU coordinated market surveillance action.

3.3.1.2 The actual use of screening techniques

A set of specific questions was asked to the 5 respondents having experienced the use of screening techniques, to better understand how each MSA has applied such techniques.

Q15(a) - For which products/regulations? Please fill in multiple information per product (screened parameters and the specific screening technique applied) and EU Regulation number, if applicable.

Q15a(i): Are the screening techniques you apply a simplification of the tests described in the harmonised standard(s) accompanying each EU ecodesign Regulation or a different kind of tests? (Please fill the table below for each product and screening technique. Please also briefly describe the simplified test method or the different one you apply

Q15a(ii). Can you estimate, according to your experience, the actual difference in amount of resources (human, financial, time) between the screening technique you are using and the running of Step 1 of the verification procedure for the same product

Q15a(iii). Where are the actual screening techniques on the product conducted and who is doing the screening?

In general, there are 8 products for which at least one MSA has applied a screening technique (Table 9). Most frequently standby power consumption (4 MSAs) and external power supplies (3 MSAs) were addressed, and less frequently simple set to boxes (1 MSA) and major household appliances (2 MSAs). Two respondents have indicated that they have conducted screening techniques also in the form of document inspection. However, document inspection is not a "screening technique" according to the ECOPLIANT project definition, but a targeting criterion (see paragraph 3.2 of this document). Therefore this answer won't be considered. The answers have been further elaborated in Table 10.

Four respondents to **Q15a(i)** have also indicated that they have followed a simplification of the harmonised standard in the form of a deviation from the standardised test conditions: by using simpler equipment(s) or by reducing the number of tests (see Table 10). In particular:

- in the first case the power consumption has been measured (for external power supplies, standby and off mode and TVs) with a simple power meter or with the so called Wattman meter (developed within the IEE SELINA project)

- in the second case :
  - for refrigerating appliances a reduced number of parameters was tested but according to the standard. The comments is if this can be considered a screening technique or a partial test
  - for domestic lighting products a reduced number of parameters was tested with a small integrating sphere (very likely a test equipment not in line with the standard)
  - for washing machines and dishwashers a lower number of test runs was carried out, thus deviating from the standard but not from the test conditions, but no information is available about the tested parameters. Although a further investigation is needed to clarify this specific aspect, it is worth noting that the new standard for washing machines EN 60456:2011 to be used for the verification of the new energy label and the ecodesign requirement leaves apparently less room for a reduction of the test runs.

Table 9: **Q15(a)**: For which products/Regulations?

Products	External Power Supplies (EC) No 278/2009	Household dishwashers (EU) No 1016/2010	Household washing machines (EU) No 1015/2010	Lighting Products in the domestic sector (EC) No 244/2009 as amended by (EC) No 859/2009	Refrigerators and freezers (EC) No 643/2009	Simple Set-Top Boxes (EC) No 107/2009	Standby and off Mode Electric Power Consumption (EC) No 1275/2008	Televisions (EC) No 642/2009
Yes	3	2	2	2	2	1	4	2
No/No answer	2	3	3	3	3	4	1	3
Q15(a): Type of screening technique applied								
Product documentation	0	0	0	0	0	0	0	0
Physical product	2	1	1	1	1	0	2	1
Both (physical product and documentation)	1	1	1	1	1	1	2	1
No information available	0	0	0	0	0	0	0	0
Q15(a): Screened parameters								
	see following Table 10							
Q15(a)(i): Screening technique methodology								
A simplification of the harmonised standard	3	2	2	2	2	1	4	2
A different test we developed for screening purpose	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
No information available	0	0	0	0	0	0	0	0
Q15(a)(iii): "Where" the screening techniques are carried out								
In our organisation's premises	1	2*	2*	2	2*	1	1	1
In a specialised laboratory	0	1*	1*	0	1*	0	1	0
In situ (in shop)	1	0	0	0	0	0	2	1
In end-user's premises/house	1	0	0	0	0	0	0	0
At Customs warehouse	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
Q15(a)(iii): Personnel carrying our the screening techniques								
Internal personnel from our MSA	3*	2*	2*	2	2*	1	3*	2
External personnel (outsourced)	1	1	1	0	1	0	2	0
Customs authority	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0

*one MSA has applied screening techniques in different places and by different types of personnel

Table 10: Comparison of the answers to Q15(a), Q15(a)(i), Q15(a)(iii) and Q15(a)(iv)

Product/Regulation	**Q15(a)**: Screened parameters	**Q15(a)(i)**: (Simplified) test method	**Q15(a)(iii)**: "Where" the techniques are carried out	**Q15(a)(iii)**: Personnel carrying our the screening techniques
External Power Supplies (EC) No 278/2009	(i) – (ii) no-load power (iii) energy consumption* (v) --	(i) -- (ii) simple power meter (iii) measurement with Wattman meter (v) --	(i) – (ii) in end-user's premises/house (iii) in situ (iv) -- (v) in our org. premises	(i) -- (ii) internal personnel from our MSA & external personnel (outsourced) (iii) internal pers. from our MSA (iv) -- (v) internal pers. from our MSA
Simple Set-Top Boxes (EC) No 107/2009	n.a.	n.a.	(v) in our organisation's premises	(v) internal pers. from our MSA
Standby and off mode Electric Power Consumption (EC) No 1275/2008	(i) en. consumption* (ii) standby power (iii) en. consumption* (iv) – (v) --	(i) simple test equipment (ii) simple power meter (iii) measurement with Wattman meter	(i) in situ (in shop) (ii) in end-user's premi-ses/house (iii) in situ (in shop) (iv) -- (v) in our org. premises	(i) external personnel (outsourced) (ii) internal pers. from our MSA & external pers.(outsourced) (iii) internal pers. from our MSA (iv) -- (v) internal pers. from our MSA
Televisions (EC) No 642/2009	(i) -- (ii) -- (iii) en. consumption* (iv) -- (v) --	(iii) measurement with Wattman meter	(i) -- (ii) -- (iii) in situ (in shop) (iv) -- (v) in our organisation's premises	(i) -- (ii) -- (iii) internal pers. from our MSA (iv) -- (v) internal personnel from our MSA

*the measured parameter is very likely the power consumption (W) and not the energy consumption (kWh)

Table 10: Comparison of the answers to Q15(a), Q15(a)(i), Q15(a)(iii) and Q15(a)(iv) (continued)

Product/Regulation	**Q15(a)**: Screened parameters	**Q15(a)(i)**: (Simplified) test method	**Q15(a)(iii)**: "Where" the techniques are carried out	**Q15(a)(iii)**: Personnel carrying our the screening techniques
Household dishwashers (EU) No 1016/2010	n.a.	(iv) reduced number of test cycles	(iv) in our organisation's premises & in a specialized laboratory (v) in our organisation's premises	(iv) internal personnel from our MSA & external personnel (outsourced) (v) internal personnel from our MSA
Household washing machines (EU) No 1015/2010	n.a.	(iv) reduced number of test cycles	(iv) in our organisation's premises & in a specialized laboratory (v) in our organisation's premises	(iv) internal personnel from our MSA & external personnel (outsourced) (v) internal personnel from our MSA
Refrigerators and freezers (EC) No 643/2009	(iv) en. consumption and volume (v) --	(iv) reduced number of tests (v) --	(iv) in our organisation's premises & in a specialized laboratory (v) in our organisation's premises	(iv) internal personnel from our MSA & external personnel (outsourced) (v) internal personnel from our MSA
Lighting Products in the domestic sector (EC) No 244/2009 & (EC) No 859/2009	(ii) lumen/W, warm-up time (v) --	(ii) small integrating sphere (v) --	(ii) in our organisation's premises (v) in our organisation's premises	(ii) internal personnel from our MSA (v) internal personnel from our MSA

A further analysis of the disaggregated information collected in Table 10 shows that:

- for products where the power consumption was measured:
  - MSA (i) used a simple test equipment for an outsourced in situ (in shop) measurement of the energy (power) consumption of products covered by the standby and off mode electric power consumption Regulation
  - MSA (ii) used a simple power meter for the measurement, made by internal personnel from the MSA or external personnel (outsourced) at the end-user's premises/house, of the no-load power consumption of external power supplies, for products covered by the standby and off mode electric power consumption Regulation
  - MSA (iii) used the Wattman meter for in-situ (in-shop) measurements of external power supplies, for products covered by the standby and off mode electric power consumption Regulation and TVs, made by internal personnel
  - Only MSA (v) has measured the set top boxes in its premises and by internal personnel. This MSA has also measured products covered by the standby and off mode electric power consumption Regulation;

- for household appliances and domestic lighting where energy consumption and other parameters were measured via a simplification of the harmonised standard:
  - MSA (ii) has measured lumen/Watt and the warm-up time for domestic lighting products, in its premised by internal personnel, using a small integrating sphere
  - Only MSA (iv) has measured all household appliances, energy consumption and volume of refrigerating appliances and unknown parameters for washing machines and dishwashers through a reduced number of tests both done by MSA personnel in the organisation's premises as well as by external personnel outsourcing the tests in a specialized laboratory
  - Also MSA (v) has measured refrigerators and freezers, as well domestic lighting products, in its premised by internal personnel, using a simplification of the harmonised standard, but no information is available on the measured parameters and the simplification applied to the standard;

A further investigation would be needed in order to clarity the measured parameters for each product and the applied modification of the test conditions of the harmonised standard, especially for those MSAs having given incomplete information about the used screening techniques.

4 MSAs answered to **Q15a(ii)** that they are able to estimate the actual difference in amount of resources between the used screening technique and the running of Step 1 of the verification procedure; the fifth MSA answered negatively (Table 11). A MSA says that more personnel (150%) is needed for screening lighting products in the domestic sector compared to a compliance verification test. Only for washing machines, dishwashers and refrigerating appliances one MSA claims that time and cost were reduced by 50% but not the human resources. When the measurement of power consumption is considered the answers are not fully understandable, although appear to indicate that some resource savings can be achieved. The answers to this question would require further investigation.

Table 11: **Q15a(ii)**, estimation of the actual resources difference between screening techniques and Step 1 of the verification procedure

Product and EC Regulation number	Resources needed compared to Step 1 of verification procedure		
	Time (%)	**Cost (%)**	**Personnel (%)**
External Power Supplies (EC) No 278/2009	n.a. 5 10 n.a n.a	n.a. 5 1 n.a n.a	n.a. 75 1 n.a n.a
Household dishwashers (EU) No 1016/2010	n.a. n.a. n.a. 50 n.a.	n.a. n.a. n.a. 50 n.a.	n.a. n.a. n.a. 100 n.a.
Household washing machines (EU) No 1015/2010	n.a. n.a. n.a. 50 n.a.	n.a. n.a. n.a. 50 n.a.	n.a. n.a. n.a. 100 n.a.
Lighting Products in the domestic sector (EC) No 244/2009 as amended by (EC) No 859/2009	n.a. 50 n.a. n.a n.a.	n.a. 5 n.a. n.a n.a.	n.a. 150 n.a. n.a n.a.
Refrigerators and freezers (EC) No 643/2009	n.a. n.a. n.a. 50 n.a.	n.a. n.a. n.a. 50 n.a.	n.a. n.a. n.a. 100 n.a.
Simple Set-Top Boxes (EC) No 107/2009	--	--	--
Standby and off Mode Electric Power Consumption (EC) No 1275/2008	25 5 10 n.a. n.a.	15 5 1 n.a. n.a.	n.a. 75 1 n.a. n.a.
Televisions (EC) No 642/2009	n.a. n.a. 10 n.a. n.a.	n.a. n.a. 1 n.a. n.a.	n.a. n.a. 1 n.a. n.a.

Q15b. In all cases, were (or are) people involved in the screening techniques trained before developing the screening technique? And by whom? Please describe

Q15c. Does your organisation buy the products that you want to screen or do you screen them without buying them?

Q15d: What is for your organisation, as a MSA, a "higher likelihood" to fail compliance testing (for example: X% higher probability)? Please describe.

Q15e: How does your organisation decide that a model under evaluation has a "higher likelihood" to fail compliance testing (for example: energy consumption exceeding X% the declared value)? Please if possible describe for each product and screening technique, or for the most representative ones

The answers of the 5 MSAs having declared that they actually apply screening techniques are reported in Table 12. The answers are listed for each of the five MSA. In particular:

- **Q15b:** training of MSA personnel carrying out the screening tests is not always requested, especially for the measurement of the power consumption in situ (in shop). When instead – see MSA (iv) and (v) – the measurement of more complex parameters and products is involved the measurement is either done by competent technical/facilities staff that are members of the market surveillance authority or is a specialised laboratory. It is worth noting that for MSA (iv) the screening techniques to be applied are proposed by the specialised laboratory to the MSA along with the explanation of the possible differences and the failure detection probability; it is up to the MSA personnel to take the decision of using the screening technique or proceeding with the complete tests.

- **Q15d**: It is worth noting that for two MSA – those using a screening technique for power consumption measurements – a product is considered to have a higher likelihood to fail compliance testing when it shows a high deviation of 50% or more from the limit or threshold value. For the other two MSA a measured value (through a screening test) that exceeds the declared one although being within the permitted tolerance is sufficient to consider the product eligible for a compliance verification; but for these two MSAs the decision is taken in a case by case condition considering previous experiences and additional information are considered in order to determine a higher likelihood of failing compliance testing.

- When MSAs were asked (**Q15e**) about how they decide that a model under evaluation has a "higher likelihood" to fail compliance testing two different answers were given:
  - for two MSAs, having measured the power consumption of the products without having purchase them, the result of a screening technique largely exceeding (50% or more) the threshold value is sufficient to consider the product non-compliant (and to ask the market operator to withdraw the product from the market) or at least to conclude that product could be non compliant;

Table 12: Summary of the answers to Questions **Q15b** to **Q15e**

MSA	**Q15b** Personnel training	**Q15c** Product purchase	**Q15d** "Higher likelihood" to fail compliance testing	**Q15e** Decision about higher likelihood
(i)	Yes, by relevant experts.	We don't buy products that we screen	35%	--
(ii)	Yes, I gave short training. It is really not difficult to use a power meter if you have some technical background.	It depends on the specific situation, No information available	--	If screening technique shows that the product is non-compliant, it is usually enough for economic operators to withdraw the product from market. They want to avoid expensive testing at laboratories, which would anyway show the product non-compliant. For example, if our simple power meter shows that stand-by power of certain device is 3,5 W, there is no way that it could be compliant (< 1,0 W) in standardized testing at laboratory. The actual power consumption could be 3,22 W, but who cares if it is way out of limits anyway ?
(iii)	No special training; just followed the instructions included by the Wattman energy meter	We don't buy products that we screen	25% till 50% is for us higher likelihood to fail compliance testing	The accuracy of the indicative measurements is a problem in situation of low energy use as in standby situations. So we need a high deviation from about 50% to come to the conclusion that the product could be non compliant
(iv)	The specialised laboratory propose to apply the screening techniques to the MSA personnel explaining the possible differences and the failure detection probability. The MSA personnel decide to stop the test or proceed with the complete tests	We buy products that we screen	Depends of the cases, but the tolerances in the relevant parameters of the Regulations are the limit normally considered. When the measured value of any parameter requested are within the tolerances but exceeding the rated value or limit, normally it is decided to make a complete test	Depends of the cases, but the tolerances in the relevant parameters of the Regulations are the limit normally considered, but the decision is taken in a case by case condition considering previous experiences
(v)	All people involved either directly or indirectly in the screen testing procedures used and trialled by <*country name*> are competent technical/facilities staff employed and recognised as key members of the market surveillance authority.	We buy products that we screen	As with targeting methods, screening techniques are not always used in isolation and may differ on a case by case, product by product or regulation by regulation basis.	The results of screening techniques may be used in conjunction with other market surveillance information in order to determine a higher likelihood of failing compliance testing.

- two other MSAs, being involved with the measurement of more complex products (that they have bought before testing) and parameters, seem to be more cautious: for one of the MSA the results of the screening should be used in conjunction with other market surveillance information in order to determine a higher likelihood of failing compliance testing. But for the other MSA the fact that a measured value of a parameter is within the tolerances but exceeds the rated value or limit is sufficient for suspecting non-compliance and going for a further complete test.
  This last approach seems illogic. In fact if the accuracy of a screening technique is worse than for a test developed according to the harmonised standard, any parameter within the allowed tolerances should be considered fully compliant. This answer would require further investigation.

Q15f: When carrying out a screening technique in your premises or in a test laboratory, what happens to the model of the product when the screening is completed and it is not selected for further compliance testing?

For 3 MSA the product is disposed when the screening is completed, while for the fourth MSA no information is available.

Q15g: When carrying out a screening technique in your premises or in a test laboratory, what happens to the model of the product when the screening is completed and it is selected for further compliance testing?

2 MSAs use the same unit for the further compliance verification tests, while other two MSAs have not given a clear answer.

The same unit is used for the further testing through the full testing procedure	The unit is eliminated and other unit(s) of the same model are used for …..	It depends on the specific situation	No information available	Total
2	0	2	0	4
50%	40%	50%	20%	100%

Q15h. Do you allow for "**false positives**" when applying screening techniques? (i.e. a non-compliant model passing the screen test and thus escaping compliance verification)?

Q15i. Do you allow for "**false negatives**" when applying screening techniques? (i.e. a compliant model fails the screen test and thus is sent to a non-necessary compliance verification)?

Only 4 MSAs, out of the 5 MSAs having experience with screening techniques, have answered to the questions about the expected outcome of each technique in terms of possibility of "*false positives*" (i.e. a non-compliant model passing the screen test and thus escaping compliance verification) and *false negatives*" (i.e. a compliant model fails the screen test and thus is sent to a non-necessary compliance verification). The two questions are articulated in a sub-questions, see Tables 13 and 14 for a compilation of the answers.

Table 13: Summary of the answers to **Q15h:** Do you allow for "*false positives*" when applying screening techniques?

MSA	Q15h	**Q15h(i)**: What is the % of "false positive" results that you consider acceptable for a screening technique to be usable? Please also comment on your reasoning in this case.	**Q15h(ii)**: What is the % of "false positive" results predicted for the screening techniques you usually apply	**Q15h(iii)**: Have you checked that the screening technique(s) you usually apply does not give "false positive" results? Comments….
(i)	Yes	10% Comment: --	We do not predict	No
(ii)	Yes	n.a. Comment: In power measurements, the accuracy of our meter is 0.1 W, so we have to accept double that. Meaning that screening result of 1,2 W is still considered compliant (if the limit is 1,0 W)	n.a.	not yet
(iii)	Yes	n.a. Comment: Could be about 10-20 %; it is inherent in screening that there is a certain inaccuracy and therefore it is necessary to do checks regularly and go for compliance verification	n.a	No; we have not yet lot of experience with compliance testing to have in that way a control on the screening test results
(iv)	Yes	No more than 10% is considered Comment: --	5%	Yes
(v)	n.a.	n.a.	n.a.	n.a.

Table 14: Summary of the answers to **Q15i:** Do you allow for "*false negatives*" when applying screening techniques?

MSA	**Q15i**	**Q15i(i)**: What is the % of "false negative" results that you consider acceptable for a screening technique to be usable	**Q15i(ii)**: What is the % of "false negative" results predicted for the screening techniques you usually apply	**Q15i(iii)** : Have your organisation checked that the screening technique(s) you usually apply does not give "false negative" results? If yes, how?
(i)	n.a.	n.a.	n.a.	n.a.
(ii)	Yes	n.a.	n.a.	n.a.
(iii)	No	n.a.	n.a.	We have a clear picture from the accuracy of the meter with which we make our "stand by" screenings. When we would have a (false) negative result we will always go for a compliance test before taking serious actions against a manufacturer.
(iv)	No	n.a.	n.a.	All negative results reported have to be tested according to the full standard requirements for the considered parameter
(v)	n.a.	n.a.	n.a.	n.a.

Surprisingly, for all 4 MSAs a screening technique is allowed to result in a non-compliant model being considered compliant (a false positive), while the contrary is largely not accepted (i.e. a compliant model failing the screen test and thus sent to a non-necessary compliance verification). No further questions about false positives/ negatives were included in the Questionnaire to better clarify MSAs' opinions, but this answer could be justified by the fact that MSAs may consider the immediate saving in the costs (of not sending a compliant product to a non necessary further compliance verification) more important than allowing a non-compliant model being instead considered compliant and remaining on the market. Should this the reason for a clear preference of false positives vs. false negatives, the additional costs for the consumers are not considered.

The outcome of the two questions is also in contrast with the answer to Q17 above about the acceptance by MSAs of the results of a screening technique developed by another MSA as a proof of the very likely compliance of the model under investigation (for 6 MSA this is acceptable). This means that more MSAs than those actually using screening techniques are apparently ready to use the outcome of a cheaper but less accurate approach even if it can result in non-compliant models passing the screening.
Should screening techniques become more spread, at least MSAs should be informed about the inaccuracy of the achieved results.

Even more surprising is the fact that all 4 MSAs consider a 10-20% of "false positive" results acceptable for a screening technique to be usable, but 3 of the 4 MSAs have not predicted nor checked the percentage of false positives of the screening technique(s) they are actually using. Only the fourth MSA says it has predicted a 5% of false positives and has checked it.
As far as "false negatives" are concerned, no MSAs have considered an acceptable percentage nor have predicted or checked the percentage associated to the screening technique(s) they use.

Q15j. How does your organisation use the results from the screenings? Please describe.

(i) To decide on whether to proceed to full testing
(ii) It gives a market picture for future planning
(iii) As said, there is less experience till now with compliance testing; that is the reason that the results of screening tests which were often not significantly deviate from the norm, only have been used to inform the manufacturer about this. In coming period, we will come to an action against the manufacturer in case of strong deviations found by screening and also in cases from non compliance based on compliance tests.
(iv) To justify whether the reduced test can reduce the cost and time resources
(v) Results from screenings are used in combination with other market surveillance information, to identify possible cases of non-compliance and to provide market picture testing.

The answer to **Q15j** shows that the four answering MSAs are very cautious about the use of the a screening test results, a part from MSA(ii) that plans to use directly screening techniques results for actions against manufacturers. Unfortunately the answers are in contrast with previous answers to Questions Q15e and Q16 where MSAs

have not only expressed their will to use the results of screening techniques for actions against manufacturers, but also declared to have already followed – successfully – this approach for some products.

3.3.1.3 Specific comments by MSA

Q15k. In your view, which are the positive and negative aspects of the screening techniques that you have applied/are applying? Please describe.

The answer of each MSA is highlighted:

(i) N.a.

(ii) Testing houses are expensive and slow, screening gives immediate results at very low cost.

(iii) Positive is that you can get an overview of many products very fast and with low costs. It gives you direction in choosing which products you will be testing. A small negative aspect is that only in case of a large deviation from the norm you can take action; when not you still have to go for a compliance test

(iv) Positive: Reduced resources and fast MS actuation. Negative: Risk of failure in the non-compliance detection

(v) Screening techniques may enable efficiencies by channelling resources in a more targeted manner but are not used as a legal basis to declare non-compliance. Screening also increases technical expertise and product knowledge.

3.3.2 *Summary and conclusions about screening techniques*

3.3.2.1 Summary of screening techniques applications

Out of the 20 MSAs that have answered to the questions about product targeting techniques only 5 MSAs have also declared to make use of screening techniques and have given some information about their actual use and results, although the collected information are sometimes fragmented, partial and contradictory.

- Four MSAs have used a simple test equipment for the measurement of the power consumption of electric power supplies, standby Regulation products, simple set-top boxes and TVs.
  - One of these MSAs has used the measurement equipment developed within the IEE SELINA project (see previous paragraph 2.3.5.3 and Figure 4) for in-situ tests carried out by internal personnel of the MSA
  - another MSA has used a simple power meter for in end-user's premises/house tests carried out by both internal personnel or outsourced to external personnel to measure the power consumption of products covered by the standby Regulation
  - a third MSA has conducted in-situ (in shop) tests carried out only by external personnel
  - one MSA has only given very partial information by saying that has conducted tests in its premised with internal personnel for some products.
- When the specific electronic products are considered the power consumption has been measured in situ (in shop), in the end-user's premises/house or in the MSA own premises, by both internal personnel of the MSA or outsourced to external personnel.

- Three MSAs have tested major household appliances and lighting:
  - one MSA has carried out a reduced number of tests to refrigerating appliances measuring only energy consumption and volume both in the organisation's premises and in a specialized laboratory, by own MSA personnel and external personnel (outsourced). The same MSA has also tested washing machines and dishwashers running a reduced number of test cycles both in the organisation's premises and in a specialized laboratory, by own MSA personnel and external personnel (outsourced); no additional information are available on the tested parameters
  - one MSA has measured the lumen/Watt value and the warm-up time of domestic lighting products with a small integrating sphere in the organisation's premises and by own MSA personnel
  - one MSA has measured the three major household appliances and the domestic lighting products in the organisation's premises and by own MSA personnel, but no other information is available.
- When the specific appliances and considered, no information is available on the parameters tested for washing machines and dishwashers, while for refrigerating appliances and domestic lighting products the tested parameters have been declared. Two simplified measurement methods have been applied for testing household appliances:
  - for refrigerating appliances: the harmonised standard was followed, but only two parameters (energy consumption and volume) out of those involved in the energy labelling were apparently measured. This is an example of a partial compliance verification test and not of the application of a "screening technique", at least according to the definition given within the ECOPLIANT project, because the simplified tests were not used to select models for a further complete compliance verification exercise according to the two step procedure established by the EU ecodesign (and energy labelling) legislation.
    The risk of such approach - that allows indeed to save some financial/time resources due to a reduced number of tested parameters - is that parameters indirectly related with the energy consumption (such as for example the storage temperature(s) for refrigerating appliances or functional performance aspects) but perceived as less important or more difficult to be tested are not verified. As consequence a specific model can be found compliant with the ecodesign (and/or labelling) energy efficiency requirements due to a poor functional performance that has not been checked.
    The recommendation for MSA is therefore that energy consumption/energy efficiency should be always verified along with the functional performance(s) and other parameters strongly linked with the energy consumption.
  - for washing machines and dishwashers: apparently a simplification of the standard was applied by reducing the number of the washing cycle runs required in the relevant (harmonised) standards. It is unknown if all parameters addressed in the EU ecodesign legislation were addressed during the simplified tests.
    The danger embedded in reducing the number of the washing cycle runs – that indeed allows to save some financial/time resources – is the increase of the measured results uncertainty, especially of the functional performance values (washing performance[11], spin drying efficiency). As consequence a larger

[11] Some international experiences in testing washing machines have preliminarily results in a 40% increase of the uncertainty of measured values

deviation should be accepted between the test results and the manufacturer declarations. It is unknown if the increased inaccuracy of the simplified tests can make the overall exercise unreliable.

- The answering MSAs are ready to accept from 10% to 20% of "false positive" results (i.e. non-compliant models passing the screen test and thus escaping compliance verification) but no "false negatives" (i.e. compliant models failing the screen test and thus sent to a non-necessary compliance verification) as the outcome of their screening techniques. But unfortunately, most of MSAs (4 out of 5) have not predicted and not checked the percentage of false positives of the screening technique(s) they are actually using.
  This answer could be explained with the strong wish of MSAs to base their market surveillance action on cheap, quick, low resource consumption methods, despite a (much) larger inaccuracy, achieving results to be used immediately against apparently non-compliant models and manufacturers.
- On the contrary, looking at other answers, MSAs appear to be very cautious about the use of screening techniques results, well understanding their limitations due to a higher inaccuracy and considering them only as a preliminary tool to better select models for compliance verification tests according to the EU legislation.
- Apparently, the only (legal) barrier considered by a MSA is that when willing to take action based on screening results the manufacturer can require measurements that are performed by a official institute. However other two MSAs recognise the risk of wrong results, maybe due to different equipment in different countries, and lack of methods and that parameters for screening techniques are pre-determined and screening is only used in the context and construct of the legislation.
- Three aspects addressed in the Questionnaire would require further investigation to better understand the actual use and success of screening techniques:
  (a) tested parameters, and related measurement uncertainty, for washing machines and dishwashers with a lower number of test runs
  (b) measured parameters and the simplification applied to the standard by MSA (v) when testing refrigerators and freezers and domestic lighting products
  (c) resource (time and costs mainly) savings achieved with screening techniques by the five answering MSA.

3.3.2.2 Conclusions on screening techniques

Conclusion of the Questionnaire answer analysis are:

- very few MSAs have applied screening techniques to products covered by the EU ecodesign legislation, and in some cases only partial and incomplete information were provided
- there is a strong request by MSAs to base their market surveillance action on cheap, quick, low resource consumption methods, despite a (much) larger inaccuracy, achieving results to be used immediately against apparently non-compliant models and manufacturers
- conflicting answers were collected about the actual use of the screening tests and results: a preliminary tool to select models for further compliance verification according to the EU legislation or a market surveillance exercise allowing an immediate actions against non-compliant products and manufacturers
- energy consumption is considered the most important parameter to be verified for product covered by ecodesign Regulation, while functional performance are less

verified, even if a strong link with energy consumption does exist both under standardised conditions and in real life

- confusion exists about the actual meaning of "screening technique": for some MSA 'document inspection' is considered a screening technique as well as the testing of a reduced number of parameters according to the relevant harmonised standard conditions. In reality, considering the specific definition given in the ECOPLIANT project the two example are not screening techniques, but a targeting technique in the first case and a partial test in the second case.

Pros and cons highlighted by some MSAs in the Questionnaire answers about the application of screening techniques are:

- Pros:
  - → quicker and (to be subject to further verification) lower resource consuming product screening although based on a measurement method that deviates from the harmonised standard
  - → shorter time for reaction against the manufacturer (if the results of a screening technique are eventually used to take action against manufacturers/suppliers)
  - → application to very simple measurements such as the power consumption (of low power modes) where a simple equipment and in-situ measurements give a good results in terms of identification of models with higher risk of non-compliance
  - → application also to other more complex products (white goods and lighting) with a less substantiated saving of resources
  - → direct use of screening test results to assess models compliance/non-compliance by some MSA for specific products

- Cons:
  - → use the results of a screening technique - with an unknown accuracy and based on a deviation from the harmonised standard - to take immediately actions against manufacturers/suppliers
  - → some MSA consider a product exceeding the declared values but within the allowed verification tolerance - as results of a screening technique with an unknown inaccuracy - as suspected of non-compliance. On the contrary in this case the product is instead compliant according to the EU labelling and ecodesign legislation
  - → the actual reduction in resources could be more a perception and expected than real, at least for complex products, and derived from running a partial test involving only parameters perceived as the most important and not all parameters covered by the EU legislation.

4. Comments from ECOPLIANT Advisory Group members and stakeholders

In April a meeting of the ECOPLIANT Advisory Group (EAG) meeting was held in Madrid. The preliminary outcome of the WP2 activities and the Questionnaire were presented by the subtask leaders. Comments were received either during the meeting and later in writings.

4.1 CECED comments on screening techniques

CECED is the European Association of Household Appliance Manufacturers. Their comments on the presentation of Subtask 1.3, essentially on screening techniques, are shown below.

Screening techniques could in our opinion actually pose a severe problem and may give rise to "unfair" market surveillance:

- authorities may only concentrate on documentation resulting in not finding unfair players with perfect documentation, but not compliant products
- for good reasons, standards have been developed to define how to measure. A simplification usually leads to the risk of wrong results – otherwise the standards would have included these techniques
- in case MSAs consider certain parameters less important, they should opt for taking these out of the regulations.
- ideas how to simplify can be brought into the standardisation process, but should in our opinion not be defined unilaterally e.g. by the market surveillance authorities. This could compromise the principle of legal certainty.

4.2 EFCEM comments on screening techniques

EFCEM is the European Federation of the catering equipment manufacturer. Their comments on the presentation of Subtask 1.3, also essentially on screening techniques, are shown below.

Screening techniques could be a big problem and may give rise to "unfair" market surveillance:

- authorities may be tempted, for the sake of time and money saving, to concentrate only on documentation. This may result in finding economic operators with perfect documentation, but not compliant products, thus creating unfair situations on the market
- too simple tests in situ may not be efficient to find non-compliant products or may easily be challenged as non reliable, thus weakening the market surveillance actions and validity
- in our opinion screening may be a way (not the only one) for the selection of products, that will then need to be tested in a reliable, competent and well equipped laboratory.

5. Proposed information and technical parameters for a common repository

The third aim of subtask 1.3 is *to identify information and technical parameters necessary for a database for screen test plans and results*: analyse the information collected in the desk research and the Questionnaire to determine how this information should be checked and included in an accessible and user friendly database. This information will feed into the information repository output of WP4.

The specific parameter to be included in a database are not defined at this stage, but this chapter will propose information, parameters and elements to be included in the database, to be further discussed and handled in other project work packages. In addition, it was also considered appropriate to present some general ideas on the structure and content of the database.

- Accessibility: the design of the database should take into consideration the subject(s) having access to it and the access modality(ies), that in turn have to be defined. In this respect a decision should also be take if some parts of the database will be accessible by the general public.

- User-friendliness: the database should be structured also for use by non-expert MSA staff and considering the type of content. A specific characteristics linked to user friendliness is the language or languages should the database be developed.

- Content: the database could include:
  - technical information on tested products: description of the models and declared/rated/nominal values
  - compliance test results (for the first unit tested and for the 3 additional units of Step 2) according to harmonised standard
  - screening test results: the inclusion to be decided considering the acceptability of these results by MSA, some of which are apparently reluctant to accept less reliable results; probably feasible for power consumption measurements
  - in-store and in-situ analysis results of legislation monitoring exercises
  - document inspection results (see Subtask 1.2)
  - MSAs analysis and conclusions on document inspection and/or test results and follow-up actions
  - a collection of templates for products test reports and more in general templates for transmission of data/information among MSA. Templates and common formats can help to partly overcome the possible problem in the use of different languages
  - basic models information (see Subtask 1.1)
  - an inventory of the existing test laboratories in the EU countries along with their location, characteristics, accreditation(s) and testing capability; test costs could be also added, to stimulate competition among laboratories, although this information can vary in time and could be considered too sensitive to be disclosed.

- Information accuracy: in particular for screening tests and compliance test results it important that the estimated reliability of measurements (for screening tests) and measurement accuracy (for compliance verification tests) is communicated along with the reported value, along with some information on the testing facility or

laboratory. This is essential especially if screening test results will be included, since for some MSA accuracy of test results is a critical element for considering the use of data coming from foreign laboratories.

- Data collection: possibility of automated vs. human control for data and information input (to avoid the problems of occurred for US Energy Star scheme) and centralised vs. local data input by each MSA should be analysed.

- Database development: the adaptation of the existing RAPEX and ICSMS database, through the development of specific modules, could be an alternative to a new stand-alone repository.

6. Subtask conclusions and the way forward

A key part of the ECOPLIANT project activities is to identify and share existing experience and best practices for market surveillance and ecodesign enforcement, to be used as the basis for the planning of the coordinated market surveillance action. Based on the outcomes ECOPLIANT will then develop and deliver Guidelines and training material for national MSA personnel, in order to transfer the acquired experience and further improve the surveillance actions for the energy using products under the ecodesign directive.

6.1 Subtask conclusions

The main conclusions of Subtask 1.3 "Techniques for Selecting Products for Testing" of Work Package 2 *Overcoming Barriers and Establishing Best Practices* are:

General conclusions:

(i) It is confirmed that in the EU most of MSA have a limited experience in market surveillance and claim to have also insufficient available human and financial resources, while few MSA have instead a longer experience and better resources for carrying out national market surveillance actions.

(ii) It is confirmed that the lack of laboratories and aspects such as costs are considered barriers to the use of targeting techniques for selection of products for testing, although they are more general barriers to products testing and not to products selection.
The lack of laboratories has been indicated several times as a barrier to an effective market surveillance. A possible solution could be to develop an inventory of the existing test laboratories in the EU countries along with their characteristics and testing capability, possibly as part of a common database (see previous chapter). This could clarify if the issue is real and also support the use of laboratories in neighbouring countries.

(iii) MSA are more focused on product energy consumption than on the consumption of other resources and the overall products environmental impact as criteria. This could be due to the emphasis given to energy consumption and saving by the EU 20% target for energy efficiency. On the other side it is known that the energy consumption is a relatively simple parameter to be measured in a verification test, compared - for example - to functional performances. But energy consumption and functional performance(s) are in most case strongly linked. Thus the apparent lower attention given to the verification of functional performance(s) could lead in the best case to products with a high energy efficiency but poor performance being considered fully compliant with the ecodesign (and energy labelling) legislation on the basis of an incomplete check; or in the worst case to products with a higher energy consumption when used by consumers in real life to compensate for the insufficient (but not verified) functional performance(s).

Targeting techniques:

(iv) MSA are apparently more in favour to select products that can be measured in a indicative way, i.e. without following the sometimes complex test conditions and procedures defined in (harmonised) standards, and where manufacturers are likely located in their country.

(v) MSA are more in favour of targeting techniques resulting in a large effect on the level of compliance with a relative low effort.

(vi) More than half of MSA declare to take into consideration complaints or reports about possible non-compliant products from outside parties, but there is an unclear position about the necessity that the complaint should be somehow substantiated (for example by a test carried out in an independent laboratory).

(vii) Document inspection is applied as an alternative targeting technique by some MSA. This choice is considered having twofold outcome: provide information to the producers about the formal requirements and an overview of the market which are useful when consider compliance test later on.

(viii) About 14-15 MSA have declared the use of specific criteria ('risk factor') to select product categories, brands and specific models for compliance verification testing when establishing their national market surveillance programmes. In this respect most important selection criteria are:

a. High energy consumption and new legislation covering a product
b. High market share and history of non-compliance for brands, along with their not frequently involvement in surveillance
c. Other member state or international complaints along with lack or insufficient technical documentation for models.

(ix) Intelligence from consumer groups and/or individuals and complaints of other organisation or competitors are considered less important by MSA.

Screening techniques:

(x) MSA strongly ask for quick and low resource (human, financial) consumption methods, somehow irrespective of their actual accuracy, to be used for market surveillance, possibly achieving results to be immediately usable against apparently non-compliant models and manufacturers.

(xi) Some MSA consider following the verification procedure established by the EU legislation and the related harmonised standards a lengthy and costly approach and in the end an obstacle for the development of an effective market surveillance action. As consequence, the request for screening techniques (i.e. preliminary and possibly lower cost tests to assess the likelihood that a model will fail a further compliance testing) and the dismay that suppliers can not accept the test results but ask for a measurements performed by an accredited laboratory and following the harmonised standard(s).

(xii) The Questionnaire answers confirm the application by MSA of screening techniques for the measurement of simple parameters, mainly the power

consumption, for all products covered by EU ecodesign legislation where low power modes are addressed, but also for more complex products (white goods and lighting).

(xiii) Whether screening techniques should be considered a targeting technique for identifying products with a higher probability of non-compliance or could be directly applied for verifying the compliance/non-compliance of models, under precise conditions (very simple measurements such as the power consumption of low power modes, where the measured power consumption is of few Watts and largely exceed the maximum threshold or limit value) is under consideration (in Australia for example).

(xiv) However there is a strong temptation in MSA to use the results of a screening technique - with an unknown accuracy and based on a deviation from the harmonised standard - to take immediately actions against manufacturers/ suppliers. This approach could create an uneven situation where stronger market actors with a higher technical/legal expertise and capability would be able to ask for clarifications about test results and require a compliance verification according to the EU legislation procedure, but smaller market actors with less expertise and resources will not and could be somehow forced to accept the suspected non-compliance for their products based on a screening technique.

(xv) Due to the larger tolerance accepted by some MSA for the screening techniques, only models with a very high deviation from the threshold (or declared) values can be captured. The risk is to create *de facto* a verification system where products with a less large deviation from the declared values (although higher than the permitted tolerances) can remain undisturbed on the market, having a very low probability to be considered eligible for a further compliance verification action. In other words in the best case only the "very low hanging fruits" can be targeted.

(xvi) Some MSA already consider a product exceeding the declared values but within the allowed verification tolerance - as results of a screening technique with an unknown inaccuracy - as suspected of non-compliance. On the contrary in this case the product is instead compliant according to the EU labelling and ecodesign legislation.

(xvii) The reduction in resources could be more a perception and expected than real, at least for more complex products.

(xviii) Industrial Associations having had the possibility to comment the ECOPLIANT Questionnaire outcome have expressed their concern about the application of the so called screening techniques, that could in their opinion actually pose a severe problem of legal certainty and may give rise to "unfair" market surveillance.

(xix) However one of the two associations suggested also to bring into the standardisation process the simplification of the testing conditions applied in the screening techniques, and if some parameters are considered less important by MSA they could ask for the removal of such parameters from the ecodesign/labelling Regulations.

Common repository:

(xx) A common repository of most important information and data supporting MSA and market surveillance actions could be designed. Although the parameters are not defined in detail in this report, some possible element for inclusions have been identified along with the main characteristics of the database and elements of the database structure and interface open for further discussion

(xxi) Finally, the adaptation of the existing RAPEX and ICSMS database, through the development of specific modules, could be an alternative to a new stand-alone repository.

6.2 The way forward

After the collection of information about (best) practices and experiences developed by national MSA, the ECOPLIANT project foresees the preparation of a set of Guidelines to be used by MSAs for carrying out future coordinated and effective national market surveillance programme(s). Within these Guidelines some of the open issues highlighted in WP2 could be discussed and solved by setting a commonly share approach and procedures to market surveillance and product compliance verification.

In this respect Guidelines should:

a) describe how targeting techniques, including document inspection, could be used for maximising the selection of the products/brands/models with a higher risk of non-compliance
b) recommend to overcome the apparent will of MSA to select products that can be measure in a indicative way, i.e. without following the sometimes complex test conditions and procedures defined in (harmonised) standards, and where manufacturers are likely located in their country
c) recommend to carefully consider complaints or reports about possible non-compliant products from outside parties, where non substantiated by a report carried out in an independent laboratory
d) recommend the application of screening techniques only for the measurement of simple parameters, mainly the power consumption. A warning about the (larger) inaccuracy of the achieved results, compared to the application of the relevant harmonised standard, should be given to MSA willing/wishing to apply screening techniques to more complex products and parameters. Guidelines should also describe test conditions and equipment to be used for in-store/in situ surveys - for power consumption measurement - for screening products and how to deal with products found exceeding the legislation requirements
e) recommend to MSA to verify the energy consumption/energy efficiency along with the functional performance(s) and other parameters strongly linked with the energy consumption
f) recommend document inspection as a targeting technique to select product for further compliance verification tests, but warning also MSA that the use of documental inspection only as a market surveillance action could be misleading, although significant failures can be found in product documents and on this basis MSA can decide to take action against a manufacturer (or supplier).

g) describe how successfully combine targeted product/brands/models selection and random selection and in any case justify the sampling strategy towards market and economic actors on a range of grounds.

In addition to the Guidelines, a common Repository of most important information and data supporting MSA and market surveillance actions could be designed. Although the parameters are not defined in detail in this report, some possible element for inclusions have been identified along with the main characteristics of the database and elements of the database structure and interface open for further discussion. Finally, the adaptation of the existing RAPEX and ICSMS database, through the development of specific modules, could be an alternative to a new stand-alone repository.

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