Deliverable 3.9:
Graphical flow chart of the methodological process, taking into account all tasks within WP3

Document published: 19.04.2018
Lead author of this document: ECOS
Project coordinator: WIP

Horizon 2020 programme
Project acronym: INTAS
Project full name:
Industrial and tertiary product Testing and Application of Standard

Co-funded by the Horizon 2020 programme of the European Union
**About the INTAS project**

The aim of the INTAS project is to provide technical and cooperative support, as well as capacity building activities, to Market Surveillance Authorities (MSAs). The need for the INTAS project arises from the difficulty that MSAs and market actors face in establishing and verifying compliance with energy performance requirements for large industrial products subject to requirements of the Ecodesign Directive, specifically transformers and industrial fans. Therefore, the project aims to:

- Support European Member State MSAs deliver compliance for large products (specifically for transformers and large fans);
- Support industry to be sure of what their obligations are under the Ecodesign Directive and to deliver compliance in a manner that will be broadly accepted by MSAs;
- Foster a common European approach to the delivery and verification of compliance for these products.

**List of project partners:**

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<tr>
<th>WIP Renewable Energies</th>
<th>Europe</th>
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<tr>
<td>European Environmental Citizens’ Organisation for Standardisation</td>
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<td>Food and Economic Safety Authority</td>
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**More information**

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

[www.INTAS-testing.eu](http://www.INTAS-testing.eu)

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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement Number 695943. The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.

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<td>Due Date for Deliverable:</td>
<td>28.02.2018</td>
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<tr>
<td>Actual Submission date:</td>
<td>19.04.2018</td>
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<tr>
<td>Lead Beneficiary</td>
<td>ECOS</td>
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<tr>
<td>Author(s)</td>
<td>Nerea Ruiz (ECOS), Christian Christiansen (DTI), Sonia Martin &amp; Rafael Guirado (FFII-LCOE), Thomas Bogner (AEA)</td>
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<tr>
<td>Dissemination level</td>
<td>PU</td>
</tr>
<tr>
<td>Keywords</td>
<td>Transformers, Fans, Market Surveillance, Testing, Europe, Energy, Ecodesign Directive</td>
</tr>
<tr>
<td>Contract n.</td>
<td>Grant Agreement Number 695943</td>
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1. Introduction

Deliverable 3.9 contains the graphical flow charts of the methodological process for the verification of compliance for power transformers and fans, taking into account all the tasks within WP 3 “Defining an effective compliance framework for MSAs and manufacturers”. The theoretical compliance assessment methodologies proposed hereby will be evaluated and validated under the upcoming activities in WP 4 “Evaluation of compliance assessment methodology”.

This report includes also an explanatory note to build on the diagrams, and a list of references to other deliverables produced within the INTAS project in which the proposed draft methodologies are based.

Please note that the methodologies presented in these flowcharts are at an intermediary stage, and are not to be considered final recommendations of the INTAS project. The methodologies will undergo a practical validation phase during which MSAs participating in the INTAS project will assess their applicability. Market actors will also be informed and consulted at a number of National Focal Point meetings organized in Europe. The validation phase will allow for refinements of the methodologies until the end of July 2018. Please visit the INTAS project website for information about the channels available for your inclusion in this process.
2. Proposed verification of compliance methodology for transformers

Flow chart for verification of compliance of power transformers

1. Product screening / sample selection
   - a. Product identification
     - Notification to MSA of new product
     - Prior to placing on the market or making available on the market.
     - Post-making available on the market and before put in service.
   - b. Product classification

2. Documentation inspection
   - Product information & Technical documentation requirements
     - Ann I, point 3 & 4
     - Doc. acceptable: No, Action!
     - Relevant values comply with req. in Ann III.

3. Testing
   - Manufacturer failed to declare the production (or order) of the product to MSA, and product already installed in-situ, or
   - Lack of agreement with client/supplier for testing at their premises, or
   - Impossibility or failure to arrange witness testing at manufacturer’s premises, or
   - Impossibility or failure to arrange mobile lab testing before the product enters service, or
   - Final assembly of the very large product is done in-situ.

- Testing at 3rd party lab.
- Testing at manufacturer’s premises
- In-situ testing
- With portable equipment brought and operated by an accredited 3rd party lab (mandated by MSA)
- With manufacturer’s measuring equipment (Witness testing with 3rd party assessment)

Key:
- MSA to take action! (model fails to comply)
- Reg for trafos exempted in Art. 1
Explanatory note

0. General information
- Proactive role of MSAs to foster knowledge among the different market actors about the regulations, conformity assessment procedures, product information and name plate requirement, etc.

1. Product screening / sample selection
- Large industrial products such industrial fans and power transformers are likely to be poorly suited to the product selection techniques that MSAs established and deployed for Ecodesign conformity verification targeted for smaller mass-produced products.
- Notification: mandatory* notification from the manufacturer/importer to MSA (either that which has a mandate where the product is first placed on the market, and/or that which has the mandate where the product is put into service) to know that the product has been placed on the market.
- Agreement: voluntary agreement between manufacturer/supplier and MSA, or between MSA and client, to allow testing at their premises

* INTAS is exploring the possibility of a mandatory notification for the MSAs to know if a transformer/fan has been installed (or produced), but currently there is no obligation for suppliers to inform MSAs that they have placed products on the market.

2. Documentation inspection
- The documentation inspection is only possible when the product has been placed on the market or it is ready to be placed on the market (the manufacturer elaborates the documentation of the product after testing it).

3. Testing
- Testing could occur before the product is placed on the market in those cases in which there is an agreement between the manufacturer/supplier and the MSA to allow testing at the manufacturer’s premises.
### List of related documents and INTAS tasks

This is a non-exhaustive list to complement the flow chart in which MSA may look for supporting reference documentation and other INTAS deliverables.

<table>
<thead>
<tr>
<th>Reference to graphical chart</th>
<th>Task</th>
<th>Tools</th>
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| **0. General information**  | Information meetings  
Webpage  
Guidelines  
Stakeholderlist  
Conformity assessment | Directive 2009/125/EC  
Reg. 548/2014 | D 3.7 (PU)  
D 3.6 (PU) |
| **1. Product screening / sample selection**  
**Product identification and classification**  
*Article 1 and 2: Scope and definitions* | Finding trafos  
Plausibility checks  
Identify trafos | Checklist  
Checklist  
EN50588-1  
EN50629  
Reg. 548/2014 | D 3.2 (CO)  
D 3.8 (PU)  
D 3.5 (PU) |
| **2. Documentation inspection**  
*Article 3, Annex I & II* | Ecodesign requirements  
Technical documentation  
Rating plate | Directive 2009/125/EC  
Reg. 548/2014 | D 3.2 (CO)  
D 3.3 (CO) |
| **4. Testing**  
*Article 5, Annex III* | Finding laboratory  
Finding testing method  
Finding standards  
Other applicable regulation for testing alongside | Database  
EN50588-1 & EN50629 | D 2.2 (CO)  
D 2.3 (CO)  
D 2.4 (CO)  
D 2.5 (CO)  
D 2.6 (CO)  
D 3.3 (CO)  
D 3.2 (CO)  
D 3.5 (PU)  
D 3.7 (PU) |
3. Proposed verification of compliance methodology for fans

Flow chart for verification of compliance of fans

0. General information
- Information meetings to market actors, webpages, guidelines, etc.

1. Product screening / sample selection
   a. Product identification
      - Notification to MSA of new product
      - Prior to placing on the market or making available on the market
      - Post making available on the market and before put in service
   b. Product classification
      - Scope Art. 1 Reg. 327/2011
      - Yes: Exemption in Art. 3 Reg. 327/2011
      - No: No further action

2. Documentation inspection
   - Doc. acceptable
     - Yes: Declared values comply with Reg. in Art. III
     - No: Action!

3. Testing
   - Full size testing
     - Results comply with Reg. in Art. III
     - Yes: Verified Ok
     - No: Action!
   - Scale model testing
     - In-situ testing
     - Availability of standardized airways and power capacities
     - Yes: Calculate/extrapolate the best efficiency point
   - With portable equipment brought and operated by an accredited 3rd party lab (mandated by MSA)
   - With manufacturer's measuring equipment (Witness testing with 3rd party assessment)

Note: MSA may decide to perform activities under 1, 2 and 3 in a different order.
**Explanatory note**

0. **General information**
- Proactive role of MSAs to foster knowledge among the different market actors about the regulations, conformity assessment procedures, product information and name plate requirement, etc.

1. **Product screening / sample selection**
- Large industrial products such as industrial fans and power transformers are likely to be poorly suited to the product selection techniques that MSAs established and deployed for Ecodesign conformity verification targeted for smaller mass-produced products.
- Notification: mandatory* notification from the manufacturer/importer to MSA (either that which has a mandate where the product is first placed on the market, and/or that which has the mandate where the product is put into service) to know that the product has been placed on the market.
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2. **Documentation inspection**
- The documentation inspection is only possible when the product has been placed on the market or it is ready to be placed on the market (the manufacturer elaborates the documentation of the product after testing it).

3. **Testing**
- Testing could occur before the product is placed on the market in those cases in which there is an agreement between the manufacturer/supplier and the MSA to allow testing at the manufacturer’s premises.
- In order to measure the performance of a fan according to the international standard ISO 5801, standardized airways are required. The standardized airways are designed according to the fan sizes - the larger the fan, the larger the standardized airway required. Due to space limitations and the cost of
the standardized airway, the right size of standardized airway is not always available for large fans. Further, the availability of a suitable standardized airway will also depend on the measuring category chosen by the supplier (A, B, C, D). Another limiting factor for testing is the electric power available at the test laboratory (500 kW is considerable power capacity).

Based, on the one side, on the fan size, the measuring category and the best efficiency point (BEP) specified by motor power input, speed, flow and pressure, and on the other side, the testing laboratory options (3rd party independent or manufacturer laboratories) and their capacities, it is evaluated what standardized airways and power capacities are available. Having this overview, the option for full size, reduced speed or scaled model testing is decided.

In case neither a suitable standardized test rig, neither the power capacity is available, in-situ testing is proposed.
### List of related documents and INTAS tasks

This is a non-exhaustive list to complement the flow chart in which MSA may look for supporting reference documentation and other INTAS deliverables.

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<td>4. Testing</td>
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#### 0. General information

- Information meetings
- Webpage
- Guidelines
- Stakeholderlist
- Conformity assessment
- ...

**Tools**

- Directive 2009/125/EC
- Reg. 327/2011

**INTAS input**

- D 3.7 (PU)
- D 3.6 (PU)

#### 1. Product screening / sample selection

**Product identification and classification**

*Article 1 and 2: Scope and definitions*

- Finding fans
- Plausibility checks
- Identify fan

**Tools**

- Checklist
- Checklist

**INTAS input**

- D 3.1 (CO)
- D 3.8 (PU)
- D 3.5 (PU)

#### 2. Documentation inspection

*Article 3, Annex I & II*

- Ecodesign requirements
- Technical documentation
- Rating plate

**Tools**

- Directive 2009/125/EC
- Reg. 327/2011

**INTAS input**

- D 3.1 (CO)
- D 3.3 (CO)

#### 4. Testing

*Article 5, Annex III*

- Finding laboratory
- Finding testing method
- Finding standards
- Other applicable regulation for testing alongside
- ...

**Tools**

- Database

**INTAS input**

- D 2.2 (CO)
- D 2.3 (CO)
- D 2.4 (CO)
- D 2.5 (CO)
- D 2.6 (CO)
- D 3.3 (CO)
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