



ANTICSS

Definition of circumvention (preliminary report)

ANTI-CIRCUMVENTION OF STANDARDS FOR BETTER MARKET SURVEILLANCE



Deliverable D7 (D2.3):
ANTICSS Project
Definition of circumvention and
differentiation to other effects
(Preliminary Report)

Document submitted: September 2018

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Horizon 2020 programme

Project acronym: ANTICSS

Project full name:

ANTI-Circumvention of Standards for better market Surveillance



Co-funded by the Horizon 2020
Programme of the European Union

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement Number 780122.
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| Project Title | Anti-Circumvention of Standards for better market Surveillance |
| Deliverable Title | D7 (D2.3) Working paper with definition of circumvention (preliminary) |
| Due Date for Deliverable: | 30.09.2018 |
| Actual Submission date: | 28.09.2018 |
| Lead Beneficiary | UBonn |
| Author(s) | Rainer Stamminger, Jasmin Geppert, Wiebke Holz |
| Keywords | Standards, Circumvention, Market Surveillance, Testing, Europe, Energy, Ecodesign Directive, Energy Labels |
| Project duration | April 2018 – March 2021 |



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1 Introduction and goal of the deliverable

The objective of D2.3 “Definition of circumvention and differentiation to other effects” is to elaborate a robust and transparent definition of “circumvention”, which shall be further evaluated within ANTICSS on a thorough, profound basis. In order to focus the scope of the project better, also differentiation from other effects not being covered by ANTICSS shall be outlined. The definitions shall be reviewed by all partners to take into account each of their specific experience as energy agencies, market surveillance authorities (MSA), testing laboratories etc. The result of this task shall be a preliminary working paper (D7) with an initial definition for circumvention as well as differentiation from other effects serving as basis for the following tasks and will be used for the interviews (WP 3). Based on the results of this further work, the proposed definition will be validated and if necessary, an updated definition and version of the working paper (D8 / D3.1) will be published.

In other words, the bottom-up approach followed in WP 2 – going from collected suspect behaviour cases to a more general definition of circumvention – will be completed in WP 3 – where the preliminary definition will be assessed against new cases and external experts experience – and will be then technically validated through laboratory testing in WP 4.



2 Description of methodology

In the following report, the different steps and measures to reach a preliminary definition for “circumvention” and to differentiate it from other effects are outlined.

The process started with a literature research with the aim of collecting published cases of suspicious behaviour that could be related to circumvention. Based on a first collection of suspicious cases, a questionnaire was drafted. With the help of this questionnaire, further cases of suspect behaviour were collected within the project team to gain a better understanding of the complexity of circumvention and to differentiate it from other effects. The questionnaire was circulated among the core partners of task 2.3 for feedback on its design and content.

An amended version of the questionnaire (see ANNEX) is divided into five different sections. The first section comprises general information about the respondent and the case (such as the origin of the data). In the second section, relevant technical information is collected (e.g. which products are affected? How does the suspect behaviour find expression?). The third section gathers information about the actions taken after the identification of the suspect behaviour. Personal considerations are in the focus of section four. Project partners participating in this task are asked to give their opinion on whether or not the reported case may be considered as circumvention. The final question covers data protection and further handling of information. Because of its negative connotation and also because it might have limited the reported cases due to differences in the partners’ opinion on what circumvention actually is, the term “circumvention” was avoided in the questionnaire and replaced by “suspect behaviour”. Thus, limitations were prevented and a more neutral collection of cases referable to circumvention and other suspect behaviour was possible.

The final version of the questionnaire was sent to all project partners of ANTICSS with the request to report any cases of suspect behaviour of a product model under testing they know about. All responses were collected and analysed by University of Bonn as task leader. In total, 24 cases with suspect behaviour were received. Descriptions and assessments of the reported cases are outlined in section 3 of this report.

At the ANTICSS Kick-off-Meeting in Berlin in June 2018, three of the reported cases were presented to the consortium to exemplify different areas of suspect behaviour and to discuss possible distinctions between “circumvention” and other suspect effects. For each product group of reported cases, at least one expert was recruited from the circle of project partners to analyse and assess the respective case(s) in detail. For this purpose, the collected cases were anonymised by blacking all references to the manufacturer or the product identification. The responsible experts were advised to analyse the cases in detail and to summarise case description, analysis



and the assessment in a presentation. The cases should be assessed by means of a list describing different categories of suspicious behaviour (for more details see section 4 of this report).

The cases and assessments were presented by the responsible experts at an *ad hoc* meeting in Frankfurt (23.07.2018). Each case was discussed by all partners attending the meeting in person or by telephone. The discussion mainly focussed on the classification of suspect behaviour cases into a set of proposed categories (see section 3). If an assignment to existing categories was not possible, an additional category was added.

Next, all categories of suspect behaviour were classified into three levels which express the degree of legality as considered by the consortium. The first level includes categories with cases of “illegal behaviour”. The second level represents categories with cases of “suspect behaviour” and the third level categories with a “conform behaviour” but that nonetheless lead to significant differences between consumption or performance under standard versus real life conditions. The categorisation and classification of the cases is outlined in a matrix (see Table 5-1) where the columns represent the cases, the rows the categories and the colours the levels. This matrix was used to analyse all categories of suspect behaviour assigned to the same level and to find a common basis to be used as a starting point for deriving a common definition of “circumvention” and for differentiating it from other effects. The sequence of developed operations is:

- collection of “suspect behaviour” cases from partners
- cases with a similar behaviour are allocated in “categories”
- categories are ranked according to similar behavioural characteristic “levels” (of legality)

The matrix can be read in different ways. For example, some categories may seem to include very similar suspect behaviours and thus be examples of a more general “type” of behaviour, but the colour of the “level” may be different from the point of view of the severity (legality) of the behaviour. On the other side, the same level of legality is present in completely different categories.

The first challenge of the described analyses as follows was to classify each single case since sometimes a similar (suspect) behaviour can be generated by different actions.



3 Description and assessment of reported cases of suspicious behaviour

By means of the survey, the following cases of suspicious behaviour were reported. All cases were analysed in detail by team members experienced with the respective products. Within the framework of an *ad hoc* meeting, suspicious behaviour of each case was categorised based on experts' assessment and by means of a list describing different categories of suspicious behaviour (see Table 4-1):

Case 1: Wine coolers:

For wine coolers, regulation 643/2009 (Annex I) defines specific requirements for temperature stability and humidity range. Temperature within the cabinet may vary by 0.5 K, whereas relative humidity should be within the range of 50-80 %. For category 10 refrigerators (multi-use and other refrigerating appliances with nominal temperature of 15 °C) of eco design regulation 643/2009 and energy labelling delegated regulation 1060/2010, requirements are not that strict. Relative humidity inside the cabinet is not further specified and the internal temperature may vary during testing, as long as the average temperature meets the requirements. A further difference between wine coolers and category 10 appliances is that the latter have to respect minimum energy efficiency requirements, whereas the first ones do not have to.

In the case reported, an EU manufacturer, who sells a wine cooler with its own brand, draws up the declaration of conformity and the product technical file, sent within the technical documentation the test report of an appliance of a non-EU producer. The test report refers to a category 10 refrigerator and not to a wine cooler, but there is a declaration of identity between both products. In addition, the EU manufacturer submitted another test report from a different EU laboratory (dated after the wine cooler model was placed on the EU market), which describes and treats that product as a wine storage appliance.

The declared values of the energy consumption in kWh / 24h are enormously different from those resulting from MSA tests. Energy efficiency class goes from B to G.

Suspect behaviour is categorised as follows:

- **Ignorance of legislation** (clear definitions for wine coolers and refrigerators are not applied)
- **Deliberate misrepresentation** (false reference is used to "show" compliance)
- **Wrong reference to legislation** (wrong reference to legislative requirements)



Case 2 (equivalent to case 7): Freezers:

Some freezing appliances are equipped with a fast freeze function to be activated by end-users prior to freezing larger quantity of unfrozen foodstuff. By activating this function, compressor work is increased resulting in lower storage temperatures inside the freezer or freezer compartment and consequently faster freezing of unfrozen foodstuff.

According to EN 62552:2013, means for pre-freezing operation (if provided) shall be activated according to manufacturer's instructions during test procedure to determine freezing capacity. In the present case, the compressor operating cycle remains unchanged during test procedure, when the fast freeze function is switched on in compliance to EN 62552:2013 and manufacturer's instructions. However, the appliance meets the declared freezing capacity and thus consumers' expectations. Additionally, it is compliant to eco-design(ED) and energy labelling (EL) requirements. Presumably, the manufacturer provides this function to achieve competitive advantages.

Suspect behaviour is categorised as follows:

- **Fake function** (the fast-freeze function is declared to be included in the product, however in fact it is not present).

Case 3: Refrigerators:

In refrigerators, "chill compartments" are defined as compartments intended for storing highly perishable food. The storage temperature of such compartments should be within the range -2 to +3 °C as specified in standard EN 62552:2013. Two aspects were observed:

- For some appliances, it was observed that the temperature within the chill compartment is maintained at temperatures above 0 and below +3 °C (thus within the temperature range specified in EN 62552:2013). According to regulations 643/2009 and 1060/2010, the nominal temperature of chill compartments for calculating the energy efficiency index (EEI) is set at 0 °C, while the test is considered valid as long as the temperature of the compartment is between -2 and 3°C. Since the temperature of the compartment is maintained above 0°C (and below 3°C), the resulting EEI is slightly better for this product than if the actual temperature of the compartment were kept at the nominal temperature of 0°C. This happens because the energy consumption of the appliance is (slightly) lower when the temperature of the chill compartment is higher than the nominal temperature.
- Due to the fact that the volume of refrigerators is determined according to the provisions given in standard EN 62552:2013 is often larger than it is in reality, the aforementioned effect is even more pronounced. When measuring the volume of the refrigerator in



accordance to the standard, neither the walls of the chill compartment (if they are less than 13 mm, which is usually most common) nor the space between the chill drawer and the walls of the refrigerator are deducted, resulting in a total refrigerator volume greater than the real volume. This implies a better EEI.

Suspect behaviour is categorised as follows:

- **Ambiguities in standards** (measurement of storage volume of chill compartments)
- **Ambiguities in legislation** (nominal temperature of chill compartments used for calculating EEI)

Case 4: Refrigerators and freezers:

During the energy consumption test according to EN 62552:2013, the refrigerator (or freezer) is maintained in a climate chamber with constant temperature and humidity. The length of the test is longer than a week and during that time, the refrigerator (or freezer) door remains closed. Some appliances are equipped with sensors and software, which are able to detect that the door remains closed at constant ambient temperature and humidity. As a consequence, the energy consumption is reduced by activating a so called holiday mode. In this mode, performance of the appliance differs from the usual one e.g. by prolonging the periods between two defrost cycles. The function is also activated in actual operation if the door remains closed for a longer period of time at constant temperature and humidity (e.g. in case of holidays) so that energy consumption is also reduced in real use in certain situations. However, the measured energy consumption does not correspond to the real use of the appliance under typical (non-holiday) conditions.

Suspect behaviour is categorised as follows:

- **Smart software / sensors** (detecting that the door remains closed for a certain period of time (during test procedure and in daily life) and altering operating characteristics)
- **Other weaknesses in test procedure** (exploiting the weakness that door openings are not considered in the test procedure due to reasons of stability and reproducibility)
- **Missing representativeness** (the measured energy is not reflecting the daily life situation)

Case 5: Washing machines:

Energy consumption of a washing machine is predominantly influenced by the washing temperature. The higher the temperature, the higher is the energy consumption. In order to save



energy without compromising washing performance, the washing temperature may be lowered in favour of the amount of detergent, agitation of the load or cycle times.

In the reported case, two different suspect behaviours have been described.

- First, the actual temperature of the water during the washing process in the eco-programme is lower than stated in the programme name. To fulfil the requirements concerning washing index (performance of a washing machine measured under predefined conditions in relation to the performance of a reference machine) as specified in regulation 1015/2010, losses in washing performance are compensated by higher agitation of the load and cycle times of more than six hours. In real life, such programmes are seldom selected due to long cycle times. Neither the relevant regulations 1015/2010 and 1061/2010 nor the standard 60456:2017 specify the actual temperature in the washing process or limit the programme duration.
- Secondly, the indicated loading capacity of washing machines was stated as suspect behaviour. Some appliances have rated capacities of 10 kg or even more. In these cases, the calculation of the EEI is more advantageous. In real life, however, consumers seldom load such a machine to its full extent. The relevant regulations do not specify an upper limit of the capacity.

In both cases, the appliance is compliant to eco-design (ED) and energy labelling (EL) requirements.

Suspect behaviour is categorised as follows:

- **Requests by legislation** (specific cycle / setting / configuration for testing for legislation compliance requested by legislation)
- **Requests by standard** (specific cycle / setting / configuration for testing for legislation compliance requested by the measurement standard)
- **Missing representativeness** (if consumers do not load the machine to its full extent, the real EEI is lower than the declared one)

Case 6: Ovens:

For electric ovens, the energy consumption value, which is declared on the energy label, is determined by measuring energy consumption using different heating functions (conventional, forced air circulation, hot steam) and temperature settings. These are defined by the relevant standard EN 60350-1. For each heating function, three different temperatures are requested, which have to be reached in the centre of the oven. If the highest of these temperatures cannot be reached, the standard requires using the maximum temperature value that is reachable. This



situation implies lower energy consumption, as the latter rises with rising temperature. However, an appliance concerned, not reaching the maximum temperature defined in the standard, would be compliant to eco-design(ED) and energy labelling (EL) requirements, subsequently.

Suspect behaviour is categorised as follows:

- **Loophole in standard** (temperature of the oven during test procedure not defined exactly)
- **Allowed deviation** (deviations in temperature of the oven during test procedure, allowed in standard)
- **Decoupling of energy and performance** (decouple measurement of energy consumption and functional performances)

Case 7: Freezers:

See case 2.

Case 8: Wine coolers:

For wine coolers, regulation 643/2009 (Annex I) defines specific requirements for temperature stability and humidity range. Temperature within the cabinet may vary by 0.5 K, whereas relative humidity should be within the range of 50-80 %. For category 10 refrigerators (multi-use and other refrigerating appliances with nominal temperature of 15 °C) of eco design regulation 643/2009 and energy labelling delegated regulation 1060/2010, requirements are not that strict. Relative humidity inside the cabinet is not further specified and the internal temperature may vary during testing, as long as the average temperature meets the requirements. A further difference between wine coolers and category 10 appliances is that the latter have to respect minimum energy efficiency requirements, whereas the first ones do not have to.

In the case reported, a wine cooler, which is sold with wine bottle racks only and described by the sentence "This appliance is intended to be used exclusively for the storage of wine" in the product fiche, was tested by the non EU-producer as a category 10 refrigerator. The appliance is referred to as a refrigerator by the energy label and as a "Temperature-controlled wine cabinet" by the user manual.

When tested by the MSA as a wine cooler, the appliance did not meet the respective requirements (temperature stability and humidity range).

Suspect behaviour is categorised as follows:



- **Ignorance of legislation** (clear definitions for wine coolers and category 10 refrigerators are not applied)
- **Ignorance of standard** (clear definitions / requirements / procedures of measurement standards are not applied)
- **Deliberate misrepresentation** (false references are used to “show” compliance)

Case 9: Refrigerators:

In the reported case, a display of a controller is activated each time the door of the refrigerator is opened and remains active for a period of 24 h. According to the user manual, the display can be switched-off temporarily by pressing a button next to the controller. However, the display cannot be deactivated permanently. The user manual additionally states that the energy consumption is increased if the display of the controller is activated. The declared energy consumption is measured without activation of the display, which has a rated power of 2 W (corresponding to an energy consumption of 0.048 kWh / 24 h).

According to standard EN 62552:2013 (paragraph 15.2.2 and 13.2), “The refrigerating appliance shall be set up as in service in accordance with the manufacturer’s instructions.” The procedure to obtain the declared energy consumption is described in the manual and therefore it agrees with the standard. Also the impact on the energy consumption is stated in the user manual. However it is most likely that the consumer will not continuously repeat the extra action required to obtain the declared energy consumption.

Suspect behaviour is categorised as follows:

- **Missing representativeness** (product performance according to ED or EL is not representative to the performance perceived by consumer in daily life, as the display cannot be deactivated permanently in real life)
- **Missing use** (product performance according to ED or EL has influence on the perceived performance of consumer in daily life only in rarely used modes, if the display is switched of manually)

Case 10: Refrigerator-freezers:

In frost-free refrigerator-freezers, any ice accumulating on the evaporator inside the cabinet is automatically removed from time to time by activating a heater to melt the ice (defrost phase). After opening the door, some appliances show an altered operating cycle for the duration of one



or two defrost periods (defrost period is defined by the time between two defrosts, the start of defrost to the start of the next defrost):

- First, an internal fan is continuously running (also during compressor off-cycle), resulting in an additional power of 2 W during the compressor off cycles. Besides the additional electrical consumption, the fan causes a change in the internal compartment temperature measured.
- Secondly, the defrost heater is active for a longer period. In the reported case, it increased from 3 minutes to approximately 18 minutes.
- Additionally, the defrost period is shortened (from 52 hours to 26 hours in the reported case).

The changes mentioned before can be observed for one or two defrost periods. Afterwards, the cabinet control changes back to the operating cycle before the door opening (fan only running during compressor on cycle, defrost phase 3 minutes, defrost period 52 hours) until another door opening is detected.

According to standard EN 62552:2013, there are no door openings during energy consumption test. The appliance must be installed according to the user manual, unless otherwise stated in the standard. The appliance must run at a certain temperature range measured by the thermocouples positioned inside the cabinet. Before the energy consumption test is started, the appliance has to reach stable operating conditions (energy consumption and storage temperatures values of two measurements agree within 3 % and 0.5 K, respectively). During the altered behaviour of the cabinet, the stability criteria are not met and therefore the energy consumption measurements will not contain this behaviour. In the reported case, one door opening per day increases the energy consumption by about 12 %.

It has to be mentioned that the future standard and regulation has already tackled the difference in defrost intervals. Manufacturers are forced to declare what kind of defrost algorithm they are using together with the timings. The other items are still open for discussion.

Suspect behaviour is categorised as follows:

- **Smart software / sensors** (detecting that door remains closed for a certain time (during test procedure and real life) and altering operating cycle in consequence)
- **Loophole in standard** (not addressing differences in defrost intervals)
- **Other weaknesses in test procedure** (exploiting the weakness in the test procedure's method that door openings and defrost intervals are not covered in current standard)
- **Missing representativeness** (product performance according to ED or EL is not representative to the performance perceived by consumer in daily life, as the door is opened several times per day in normal use).



Case 11: Automatic dishwasher:

For energy consumption and performance tests, automatic dishwashers have to be loaded with the indicated number of place settings which are soiled in accordance with standard EN 50242. With regard to the loading and the settings of the machine, the standard requests to follow manufacturer's instructions.

In the reported case, a separate "bowl" support, which is marked as "only for standard tests" or similar on the packaging, is supplied with the machine. This support is attached to the saucer support prongs in the upper rack when loading to the full 15 place settings (Energy Label load as specified by the manufacturer). The support is not mentioned anywhere else than in the standard loading plan supplied separately by the manufacturer meaning that it is not intended for use by consumers. However, the appliance is formally compliant to eco-design(ED) and energy labelling (EL) requirements when measured with the supports.

Suspect behaviour is categorised as follows:

- **Requests by manufacturer** (to use "bowl support" for conducting standard tests)
- **Requests by standard** (standard requests to follow manufacturer's instructions)
- **Specific design / accessories for testing only** (product specifically designed to get advantage in ED or EL without function in real use)
- **Missing representativeness** (product performance according to ED or EL is not representative to the performance perceived by consumer in daily life, as "bowl" support is intended for standard tests only and not for daily use)
- **Loophole in standard** (in not addressing the use of accessories for testing only)

Case 12: Television:

According to standard IEC 62087-2:2015, TV's power input is measured at factory setting. In the reported case, it was observed that power consumption increased, if the factory setting was adjusted manually for the first time. In concrete terms, brightness value is 45 in factory setting, corresponding to 71 W. However, if the brightness decreases by one point to a value of 44, TV's power increases to 90 W. Even if the brightness is set back to the factory setting (45), the power consumption remains high.

Suspect behaviour is categorised as follows:

- **Hidden software/ hardware** (identifying test procedure and deliberately changes resource consumption or performance parameters only under testing conditions)



- **Missing representativeness** (product performance according to ED or EL is not representative to the performance which may be perceived by consumer in daily life, as the power consumption is higher as soon as the factory setting is adjusted for the first time)

Case 13: Consumer electronics TV:

According to standard IEC 62087-2:2015, the energy consumption of TVs is tested with default settings. In the reported case, an automatic brightness adjustment function is activated by default. This function analyses the broadcast program and when fast moving images are detected, the brightness of the television is reduced automatically. As a result, the measured energy consumption of the television is significantly lower compared to a broadcast without fast moving images. The standardised test movie, which is used for measuring the energy consumption, only consists of fast moving images. Prior to the start of the standardised test movie, a countdown clip is shown. This countdown lasts for 10 seconds and does not contain any fast moving images. After the 10 seconds, the movie content is played and the automatic brightness adjustment function is triggered. This results in a reduction of the input power of approximately 35%.

Suspect behaviour is categorised as follows:

- **Smart software / sensors** (detecting fast moving images (during test procedure and in daily life) and altering operating characteristics)
- **Other weaknesses in test procedure** (exploiting the weakness in the test procedure's method that the measurement takes place with always the same standardised test video)
- **Missing representativeness** (product performance according to ED or EL is not representative to the performance which may be perceived by consumer in daily life, as the declared energy consumption is significantly lower than in daily life)

Case 14: Household tumble dryers:

According to standard EN 61121, the dry cotton programme shall be selected to measure condensation efficiency of condensation tumble dryers in the drying test. Both, the mass of the test load before and after drying and the mass of condensed water inside the container shall be determined. If the appliance has not been operated for more than 36 hours, the first cycle shall not be evaluated.

In the reported case, certain household tumble dryers have a statement in the instructions regarding specific preparation before commencing tests according to standard EN 61121. It is required that a 3 kg load is prepared to 70% residual moisture content and the tumble dryer is



loaded with this load. After this, the tumble dryer shall be operated in the normal cotton programme before commencing EN 61121 tests.

It is possible that this specific set of requirements could trigger a different performance profile to get an advantage in ED or EL.

Suspect behaviour is categorised as follows:

- **Requests by manufacturer** (specific preparation before commencing tests)
- **Ignorance of standard** (standard requests that the first cycle shall not be evaluated if the appliance has not been operated for more than 36 hours)

Case 15: Electric motors:

Standard EN 60034-2-1 specifies: "Tests shall be conducted on an assembled machine with the essential components in place, to obtain test conditions equal or very similar to normal operating conditions. Externally accessible sealing elements may be removed for the tests, if an additional test on machines of similar design has shown that friction is insignificant after adequately long operation."

The removal of externally accessible sealing elements may change the energy consumption. Although the difference may be small, it can be enough to claim compliance or not.

Suspect behaviour is categorised as follows:

- **Ambiguities in standards** (ambiguity about the removal of externally accessible sealing elements in standard)
- **Allowed deviation** (deviations in assembling the machine for testing, allowed in standard)
- **Missing representativeness** (product performance according to ED or EL is not representative to the performance which may be perceived by consumer in daily life, as sealing elements may change performance)

Case 16: Solid fuel boilers, local space heaters:

During a recent inspection campaign to control if new standards are respected, suspicious behaviour with regard to solid fuel boilers has been observed. Some producers applied modifications on products tested such as a different combustion air circuit, additional aluminium tape sealing on the air entrance or a modified baffle in the air exhaust duct. As a result, the performance is improved. However, these modifications were not applied to the whole production chain, but only to the products tested in order to get the CE marking.



According to an expert responsible for market surveillance, it is common to do such modifications to reach the performance requested. However, producers are responsible to adapt the whole production line to these modifications to ensure that all appliances are able to obtain the same performances than the tested sample. Despite the requirement explained in the European standard saying that the tested sample for CE marking must be representative of the production, some manufacturer don't produce appliances like the one used for CE certification tests.

According to the notifying institution, this problem results from the EU regulation of self-declaration that does not impose certification by third parties nor third party control of production.

Suspect behaviour is categorised as follows:

- **Ignorance of standard** (saying that the tested sample for CE marking must be representative of the production)
- **Modified test samples** (product used for testing is a modified version that is not representative for products from the production line)

Case 17: Air conditioning and ventilation:

The EER (energy efficiency ratio) is a measure of energy efficiency (cooling capacity divided by power input). The higher the value the more efficient is the appliance. In the reported case, the EER measured by the manufacturer, which is given in the test report of the technical documentation, is 2.5 and consequently is below the declared value of 2.6. The measured value in the MSA laboratory (EER= 2.72) fully confirms the declared value. However, the manufacturer has achieved a better product positioning by misusing the verification tolerance. Further, the model could not be placed on the market due to non-compliance with ecodesign minimum requirements if declared correctly, since the correct EER (2.5) is lower than the minimum requirements of 2.6.

The cooling power measured by the manufacturer in the test report of the technical documentation is 2.8 kW. This value is 5% lower than the declared value of 3.0 kW. The measured value in the MSA laboratory is 2.83 kW, confirming the result of the manufacturer test report, but not the declared value of the cooling capacity. This means that the consumer purchases a model with a cooling capacity lower than the declared value.

The cooling capacity is not listed in the verification Annex of the eco-design / energy labelling regulations, nor in the currently harmonised EN standard, therefore MSAs may ignore this parameter (not to be verified for the ecodesign / labelling regulations) due also to the lack of verification tolerance. However, the latest interpretation is that when no tolerance is defined in a regulation then tolerance is zero and declared value has to comply with the measured value.



For this model the mere verification through laboratory testing (with no documental inspection) would result in a compliant product for both ecodesign and energy labelling, because the result of the MSA laboratory testing and the EER declared values are within the permitted tolerance. Because of the reduced cooling power in comparison to the declared value, it is easier to achieve compliance with ecodesign requirements and labelling.

Suspect behaviour is categorised as follows:

- **Missing representativeness** (product performance according to ED or EL is not representative to the performance which may be perceived by consumer in daily life, as the actual cooling power is lower than the declared one)
- **Ambiguities in standards** (ambiguity in verification tolerances)

Case 18: Air conditioning and ventilation:

In this case, the suspect behaviour concerns the cooling and heating capacities.

The declared value of cooling power is 2.5 kW. The measured value in the manufacturer test report is 2.37=2.4 kW. This value is not supporting the declared value.

The declared heating power in the warmer season is 2.4 kW. The measured value in the manufacturer test report is 2.2 kW (13.6% lower than declared). The declared heating power in the colder season is 4.0 kW, the measured value in the manufacturer test report is 1.72 kW (much lower than declared).

This means that the consumer purchases a model with lower cooling and heating capacities than declared by the manufacturer. Because of the reduced cooling and heating power in comparison to the declared values, it is easier to achieve compliance with ecodesign requirements and labelling.

Suspect behaviour is categorised as follows:

- **Missing representativeness** (product performance according to ED or EL is not representative to the performance which may be perceived by consumer in daily life, as the actual cooling and heating power is lower than the declared one)
- **Ambiguities in standards** (ambiguity or lack of specific procedure for the verification of this parameter)



Case 19: Domestic washing machines:

A washing machine with two front doors is object of the reported case. The upper drum is smaller with a capacity of 4 kg, the lower drum has a capacity of 8 kg.

Energy labelling and ecodesign requirements for washing machines are based on 60 °C and 40 °C cotton standard programmes, which have to be indicated on the front / display of the machines. Even though the smaller drum in the reported washing machine is able to perform the same or equivalent washing programmes as the larger one, it is declared to not being able to perform 60 °C and 40 °C cotton standard programmes. Therefore, the energy and water consumption and the functional performance of the upper drum cannot be measured and shown to the consumers via the energy labelling. The consumer is misguided by the energy label, which refers only to a part of the appliance and not to the whole appliance. Consumers, who are not that familiar with energy labelling, do not know this.

Suspect behaviour is categorised as follows:

- **Missing use** (standard conditions are not representative to for daily life user conditions, as the label and the declared values only refer to a part of the machine)
- **Deliberate exclusion from scope** (60 °C and 40 °C standard cotton programmes are not indicated for the second drum so that the resource consumption and the functional performance cannot be tested for this drum)
- **Requests by legislation** (to use 60 °C and 40 °C cotton standard programmes to test compliance with eco-design requirements)
- **Ambiguities in legislation** (ambiguity about indicating 60 °C and 40 °C standard cotton programmes for machines with more than one drum)
- **Loopholes in legislation** (not defining machines with more than one drum)

Case 20: Boilers and combi-boilers:

Gas boilers and combi-boilers could be placed on the market with two possible installation configurations. The first configuration is a more classic configuration for a condensing boiler, where the connection with a condensation disposal system (drain tube or collection tank) is foreseen. The second configuration is an alternative configuration, where a by-pass, supplied by the boiler manufacturer with full installation and regulation instructions, is foreseen between the supply and return heat transfer fluid pipes, to decrease the condensation formation. As a result, a "condensing boiler" might become a "quasi non-condensing boiler" or "non-condensing boiler" with less condensation or even no condensation produced.



However, since non-condensing boilers are less energy efficient than condensing ones and non-compliant with the ecodesign minimum efficiency requirements, the second configuration might result in potentially non-compliant boilers being placed on the market and installed in households.

Suspect behaviour is categorised as follows:

- **Missing representativeness** (standard conditions are not representative to for daily life user conditions, since non-condensing boilers are less energy efficient)
- **Loopholes in legislation** (legislation does not specifically provide a procedure that considers by-passes or any other technical mean that may alter the configuration of the product in real life compared to test conditions)

Case 21: Domestic lighting, non-directional lamps:

The stated lamp was considered a special purpose lamp (SPL) as it was declared as a lamp for traffic lights. The technical documents of the lamp did not show any technical features why this lamp should be a special lamp for traffic lights. Lamps for special purposes (such as for traffic signals) are not subject to the ecodesign requirements.

Suspect behaviour is categorised as follows:

- **Deliberate misrepresentation** (false reference is used to “show” compliance)

Case 22: Domestic lighting:

The Swedish Consumer Association tests, conducted between 2012 and 2014, found that a specific halogen lamp consumed 25% more energy than claimed on the label to achieve its declared 630 lumens of brightness.

The discrepancy is caused by manufacturers abusing verification tolerances in official testing procedures for bulbs.

Suspect behaviour is categorised as follows:

- **Deliberate misrepresentation** (false calculations are used to “show” compliance)



Case 23: Vacuum cleaners:

For vacuum cleaners, the sound level must be specified. For this, tests are necessary. One manufacturer said that its tests recorded a sound level of less than 80 dB. This was achieved by partially sticking the test carpet to the floor to reduce vibrations. The company incorrectly claimed that this was permitted for the EU noise assessment, but it is ambiguous. Further it also doesn't reflect the reality in people's homes.

Suspect behaviour is categorised as follows:

- **Ambiguities in standards** (ambiguities about the allowance to fix the test carpet to the floor)

Case 24: Domestic refrigerator-freezers:

In frost-free refrigerator-freezers, any ice accumulating on the evaporator inside the cabinet is automatically removed from time to time by activating a heater to melt the ice (defrost phase). To avoid an increase in temperature of the frozen food, some appliances are programmed to cool-down products inside the cabinet just before a defrost event. This cool-down function consumes extra energy. In some cases, the cool-down starts just after the maximum testing time (of 48 or 72 hours) is reached meaning that the extra energy consumption of this function is not incorporated in the test result. This is in accordance to the current standard EN 62552:2013. The difference in energy consumption is reported to be about 4 %.

It has to be mentioned that the future standard and regulation have already tackled this issue. In future, the aforementioned behaviour is part of the energy consumption value.

Suspect behaviour is categorised as follows:

- **Loophole in standard** (not addressing defrost intervals)
- **Decoupling of energy consumption and performance** (decouple measurement of energy consumption and functional performances)



4 Description of suspect behaviour categories

As a part of the search for already existing definitions of “circumvention”, examples and descriptions of typical suspicious behaviours were collected and categorised. For this purpose, relevant EU regulations and standards¹ were scanned for definitions or descriptions of “circumvention”. Based on these, a list of suspect behaviour categories was compiled. This list was used to assess the cases reported within the framework of the questionnaire. During the meeting in Frankfurt, the assessment of the cases was discussed. When necessary, missing categories were added to the list in order to assess the cases as precisely as possible. The preliminary list of suspicious behaviour categories including examples is shown below (see Table 4-1).

¹ such as Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017, Commission Regulation (EU) No 1015/2010 of 10 November 2010 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household washing machines, Commission Regulation (EU) No 1016/2010 of 10 November 2010 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household dishwashers



Table 4-1: List of suspicious behaviour

| Short name | Description | Example | Case No. |
|--|--|--|-----------|
| Related to product / manufacturer | | | |
| Hidden software / hardware | Any control device, software, component or part that identifies test procedure and deliberately changes resource consumption or performance parameters ONLY under testing conditions. The hidden software / hardware is neither described nor declared in the instruction manual or any other document. | <p>a) A hidden device or software, which alters resource consumption or performance of an appliance as soon as the factory setting is adjusted for the first time; see e.g. case 12 on TVs: adjustment of brightness factory setting</p> <p>b) A hidden device or software that detects one special characteristic, which is only present under test conditions, and subsequently alters resource consumption or performance of the product under test</p> | 12 |
| Smart software / hardware | Any control device, software, component or part that identifies specific process parameters during test procedure and real life usage and changes resource consumption or performance parameters. The key distinction between smart and hidden software / hardware is that a hidden software or hardware saves energy or other resources ONLY during the test procedure but not during intended use whereas the smart software or hardware saves energy or other resources during both, test procedure and intended use. The smart software / hardware is described or declared in the instruction manual or any other document. | “Holiday mode”, which changes the operating characteristics of a product, if user interaction is missing for a defined period (during test procedure and in real life); see e.g. case 4 on refrigerators: switch to holiday mode without door opening | 4, 10, 13 |
| Software or firmware updates | Perceptible difference in the product performance and / or resource consumption between original and updated status without explicit knowledge and consensus of the user. | A product connected to the internet is updated. The update causes an alteration of operating conditions of the product, which might be associated with an alteration in resource consumption or performance. The user is not informed about the change in resource consumption or performance. | - |



| Short name | Description | Example | Case No. |
|--|---|---|-----------|
| Requests by manufacturer | Specific cycle/setting/configuration only for testing for legislation compliance requested by manufacturer | Manufacturer gives information (not requested by legislation nor standard) exclusively for test labs on how to bring the product into service or how to handle the machine during the test procedure, which may result in more beneficial test results and lack of comparability between products; see e.g. case 14 on tumble dryer: specific preparation before commencing tests | 11, 14 |
| Specific design / accessories for testing only | Product specifically designed to get advantage in ED or EL without function in real use | Using an accessory only for testing purposes, but not in real life, to get a better test result; see e.g. case 11 on dishwashers: bowl support to be used only in standard testing | 11 |
| Missing use | Manufacturer requests to test a product in a mode, which is rarely used in daily life. So product performance according to ED or EL is representative for the perceived performance of consumer in daily life only in rarely used modes | Testing of a product in a mode which rarely occurs in daily life; see e.g. case 9 on refrigerators: activation of an energy consuming controller display when door is opened. Cannot be permanently switched off | 9, 19 |
| Modified test samples | Product used for testing is a modified version that is not representative for products from the production line | A product used for test purposes is modified for testing; see e.g. case 16 on boilers: modifications applied only for CE testing not to the whole product line | 16 |
| Deliberate exclusion from scope | Product specifically designed to be excluded from legislation | One specific programme or function of a product is missing so that it is out of scope of legislation; see e.g. case 19: double drum washing machines with no cotton standard programme available for one of the drums | 19 |
| Ignorance of legislation | Clear definitions / requirements / procedures in legislation are not applied | Even though a product clearly belongs to a certain category, it is treated as a product of another category; see e.g. case 1: wine cooler treated as cat. 10 refrigerator in resource consumption / performance testing | 1, 8 |
| Ignorance of standard | Clear definitions / requirements / procedures of measurement standards are not applied | Provision given by the instruction manual to perform standard tests contradicts requirements specified by the standard; see e.g. case 14 on tumble dryers: specific preparation before commencing tests requested by manufacturer contradicts | 8, 14, 16 |



| Short name | Description | Example | Case No. |
|--------------------------------|--|---|--------------|
| | | requirements specified by the standard | |
| Wrong reference to legislation | Misleading and/or wrong reference to legislative requirements (e.g. wrong specification of programmes) | A wrong legislation is used; see e.g. case 1: wine cooler treated as cat. 10 refrigerator | 1 |
| Deliberate misrepresentation | False references or calculations are used to 'show' compliance | Products are declared for other use as for testing of compliance; see e.g. case 21 on lighting: lamp considered to be a special purpose lamp | 1, 8, 21, 22 |
| Fake function | A function is declared to be included in the product, however in fact it is not present | This special function of a product does not change its operation characteristics when activated; see e.g. case 2 on freezers: "fast freeze button" without effect | 2, 7 |
| Related to legislation | | | |
| Requests by legislation | Specific cycle/setting/configuration for testing for legislation compliance requested by legislation | Legislation requests to use a specific programme or setting to perform resource consumption or performance tests; see e.g. case 19 on washing machines: 60 °C and 40 °C cotton standard programmes to test compliance with eco-design requirements requested by legislation | 5, 19 |
| Ambiguities in legislation | Ambiguities (such as unclear definitions, boundaries, different interpretation) in legislation | Definitions in legislation are not precise or are too broad and leave room for interpretation; see e.g. case 19 on washing machines: ambiguity about indicating 60 °C and 40 °C standard cotton programmes for machines with more than one drum | 3, 19 |
| Loophole in legislation | Weak elements in legislation are used by manufacturers resulting in declaration of more efficient products or products of better performance | Washing machines with more than one drum are not considered in legislation and this fact is used by manufacturer to declare a more efficient product; see e.g. case 19 on washing machines | 19, 20 |
| Related to standards | | | |



| Short name | Description | Example | Case No. |
|---|--|---|-----------------------|
| Requests by standard | Specific cycle/setting/configuration for testing for legislation compliance requested by the measurement standard | Standard requests to use a specific programme or setting to perform resource consumption tests; see e.g. case 11 (dishwasher): standard requests to follow manufacturer's instructions | 5, 11 |
| Ambiguities in standards | Ambiguities (such as unclear definitions, boundaries, different interpretation) in standards | Definitions in standard are not precise or are too broad and leave room for interpretation; see e.g. case 15 on motors: ambiguity about the removal of externally accessible sealing elements in standard | 3, 15, 17, 18, 23 |
| Loophole in standard | Weak elements in standardisation are used by manufacturers resulting in declaration of more efficient products or products of better performance | Test procedure is not addressing specific characteristics; see e.g. case 10 on refrigerator-freezers: not addressing differences in defrost intervals | 6, 10, 11, 24 |
| Other weaknesses in test procedure | Weakness in the test standard which is not an ambiguity or loophole. | The weakness that user interaction with a product is not considered in test procedure is exploited to detect test conditions and alter operating characteristics; see e.g. case 4 on refrigerators: door openings not considered in test procedure | 4, 10, 13 |
| Decoupling of resources and performance | Decoupled measurement of resource consumption and functional performances | Resource consumption and performance are measured in separately tested cycles | 6, 24 |
| Related to legislation and standards | | | |
| Allowed deviation | Deviations in testing condition(s), allowed in standard or regulation clauses | It is allowed by standard or regulation to deviate from defined test procedure, if the product is not able to fulfil test requirements; see e.g. case 6 on ovens: highest temperature may be lower or case 15 on motors: optional removal of external seals | 6, 15 |
| Missing representativeness | Product performance according to ecodesign or energy labelling is not representative of the performance which may be perceived by consumer in daily life | Testing of a product in a mode which seldom occurs in daily life; see e.g. case 4 on refrigerators: door remains closed under test conditions | 4, 5, 9-13, 15, 17-20 |



5 Classification of suspicious behaviour categories

The table below gives an overview of the assessment of the reported cases. Following a three level approach as proposed in the technical annex of the project proposal, the legality of suspicious behaviour was assessed and discussed by the project team. The colours in the table highlight the degree of legality (red = illegal, orange = suspect, yellow = conform).

Table 5-1: Matrix showing categorisation and classification of reported cases

(Wine = wine cooler; Ref = refrigerator; WM = washing machine; Oven = oven; Ref-Fr = refrigerator-freezer; DW = dishwasher; TV = television; TD = tumble dryer; Motor = motor; Boiler = Solid fuel boilers, local space heaters; AC = air conditioning and ventilation; Light = lighting; VC = vacuum cleaner)

| Case | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
|--|------|-----|-----|-----|----|------|-----|-----|--------|--------|----|----|----|----|-------|--------|----|----|----|--------|-------|-------|----|-----|--|
| | Wine | Ref | Ref | Ref | WM | Oven | Ref | Ref | Ref-Fr | Ref-Fr | DW | TV | TV | TD | Motor | Boiler | AC | AC | WM | Boiler | Light | Light | VC | Ref | |
| Related to product / manufacturer | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hidden software / hardware | | | | | | | | | | | | X | | | | | | | | | | | | | |
| Smart software / sensors | | | | X | | | | | | X | | | X | | | | | | | | | | | | |
| Software or firmware updates | | | | | | | | | | | | | | | | | | | | | | | | | |
| Requests by manufacturer | | | | | | | | | | | X | | | X | | | | | | | | | | | |
| Specific design/accessories for testing only | | | | | | | | | | | X | | | | | | | | | | | | | | |
| Missing use | | | | | | | | | X | | | | | | | | | | | X | | | | | |
| Modified test samples | | | | | | | | | | | | | | | | X | | | | | | | | | |
| Deliberate exclusion from scope | | | | | | | | | | | | | | | | | | | X | | | | | | |
| Ignorance of legislation | X | | | | | | | X | | | | | | | | | | | | | | | | | |
| Ignorance of standard | | | | | | | | X | | | | | | X | | X | | | | | | | | | |
| Wrong reference to legislation | X | | | | | | | | | | | | | | | | | | | | | | | | |
| Deliberate misrepresentation | X | | | | | | | X | | | | | | | | | | | | | | X | X | | |



| Case | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
|---|------|-----|-----|-----|----|------|-----|-----|--------|--------|----|----|----|----|-------|--------|----|----|----|--------|-------|-------|----|-----|---|
| | Wine | Ref | Ref | Ref | WM | Oven | Ref | Ref | Ref-Fr | Ref-Fr | DW | TV | TV | TD | Motor | Boiler | AC | AC | WM | Boiler | Light | Light | VC | Ref | |
| Fake function ² | | X | | | | | X | | | | | | | | | | | | | | | | | | |
| Related to legislation | | | | | | | | | | | | | | | | | | | | | | | | | |
| Requests by legislation | | | | | X | | | | | | | | | | | | | | X | | | | | | |
| Ambiguities in legislation | | | X | | | | | | | | | | | | | | | | X | | | | | | |
| Loophole in legislation | | | | | | | | | | | | | | | | | | | X | X | | | | | |
| Related to standards | | | | | | | | | | | | | | | | | | | | | | | | | |
| Requests by standard | | | | | X | | | | | | X | | | | | | | | | | | | | | |
| Ambiguities in standards | | | X | | | | | | | | | | | | X | | X | X | | | | | | X | |
| Loophole in standard | | | | | | X | | | | X | X | | | | | | | | | | | | | | X |
| Other weaknesses in test procedure | | | | X | | | | | | X | | | X | | | | | | | | | | | | |
| Decoupling of energy and performance | | | | | | X | | | | | | | | | | | | | | | | | | | X |
| Related to legislation and standards | | | | | | | | | | | | | | | | | | | | | | | | | |
| Allowed deviation | | | | | | X | | | | | | | | | X | | | | | | | | | | |
| Missing representativeness | | | | X | X | | | | X | X | X | X | X | | X | | X | X | X | X | | | | | |

² Compliant to ED and EL, but perhaps not meeting other legislation requirements, like consumer protection laws

6 General definitions for ‘circumvention’, ‘suspect behaviour’ and ‘conform behaviour’

“Circumvention” comes from Latin *circumventus*, the past participle of the verb *circumvenire* that means “to come around”. It has currently different related meanings with a general negative connotation: “(1) to go around or bypass; (2) to avoid (defeat, failure, unpleasantness, etc.) by artfulness or deception; avoid by anticipating or outwitting; (3) to surround or encompass, as by stratagem; entrap.”³ Based on the aforementioned general definition, the assessment of the reported cases and the classification of the suspect behaviour categories (cf. Table 5-1), a specific definition for circumvention with regard to ecodesign / energy labelling was derived. For this purpose, all categories assigned to the same level of legality were listed and analysed to find a common basis. The latter was used as a starting point for the formulation of the definition.

Level 1 of “circumvention” describes an illegal act. In defining this level, it is important to distinguish circumvention clearly from other acts leading to non-compliance of a product (e.g. label not displayed correctly at point of sale), as all products subject to “circumvention” are non-compliant⁴, but not vice versa. A distinctive feature is that circumvention is induced deliberately and that the act is artful and deceptive. Masking non-compliance is a key indicator for circumvention.

Preliminary definition 1st level: “Circumvention” describes the act of deliberately, artfully or deceptively bypassing the requirements in the applicable EU ecodesign and / or labelling legislation in an illegal way.

The following categories of suspicious behaviour, as described in detail in Table 4-1, are subsumed under the 1st level and considered as “circumvention”:

| | |
|-----------------------------------|---|
| Related to product / manufacturer | <ul style="list-style-type: none"> • Hidden software/hardware • Software or firmware updates • Specific design / accessories for testing only • Modified test samples • Ignorance of legislation • Ignorance of standardisation • Deliberate misrepresentation • Wrong reference to legislation |
|-----------------------------------|---|

³ Source: <https://www.dictionary.com/browse/circumvent>

⁴ “Non-compliance” is defined as „failure or refusal to comply, as with a law, regulation, or term of a contract” (Source: <https://www.dictionary.com/browse/non-compliance>)



The second level is called “suspect behaviour” and referred to acts, whether illegal or not, where the spirit of the EU eco-design and / or energy labelling legislation or standards is not followed. This 2nd level has to be seen as an interim category, as further assessment is required to decide whether the specific behaviour is illegal or not.

Preliminary definition 2nd level: “Suspect behaviour” describes the act of deliberately bypassing the relevant requirements in the applicable EU ecodesign and / or labelling legislation or standards in a way that does not follow the spirit of the relevant legislation. A further analysis has to be performed in order to assess if the specific behaviour is illegal.

The following categories of suspicious behaviour, as described in detail in Table 4-1, are subsumed under the 2nd level and considered as “suspect behaviour”:

| | |
|-----------------------------------|---|
| Related to product / manufacturer | <ul style="list-style-type: none">• Smart software/sensors• Requests by manufacturer• Deliberate exclusion from scope |
| Related to legislation | <ul style="list-style-type: none">• Ambiguities in legislation• Loophole in legislation |
| Related to standards | <ul style="list-style-type: none">• Ambiguities in standards• Loophole in standard• Weakness in test procedure |

All further ANTICSS work packages will concentrate on the levels 1 and 2 described before.

Nevertheless, during the assessment of the cases and the classification of the categories of suspicious behaviour, a third level was identified, referring to “conform behaviour”, which means to be compliant to legislation but not sufficiently reflecting performance or use of resources as perceived by consumer in daily life. This third level is neither illegal nor considered as “circumvention”. For that reason, it is not in the focus of further work packages in the ANTICSS project. However, categories of suspicious behaviour, which are subsumed under the third level, might be used for the assessment of cases where applicable.

The following categories, as described in detail in Table 4-1, are considered as “conform behaviour”:

| | |
|-----------------------------------|--|
| Related to product / manufacturer | <ul style="list-style-type: none">• Decoupling of energy and performance• Missing use |
| Related to legislation | <ul style="list-style-type: none">• Requests by legislation |



| | |
|--------------------------------------|--|
| Related to standards | <ul style="list-style-type: none">• Requests by standard• Allowed deviation |
| Related to legislation and standards | <ul style="list-style-type: none">• Missing representativeness |

A three level concept had proven useful because it allows differentiating “circumvention” from other effects. Because of that, it has been applied for the formulation for the definitions. The definitions were reviewed within the project team to take into account their experience. They have to be seen as a first proposal. Their validity should be verified throughout the ANTICSS project. If necessary, the definitions will be amended and discussed again within the project consortium.

The definitions are the basis for future dissemination activities of the results and for any communication to external stakeholders.



7 ANNEX - Questionnaire



Co-funded by the Horizon 2020 programme of the European Union

ANTICSS project questionnaire about suspect behaviour of products under testing

As part of the recently launched Horizon 2020 project ANTICSS (Anti-Circumvention of Standards for better market Surveillance), the following questionnaire has been prepared to collect information about suspect behaviour of product models during testing according to the standards for energy labelling and ecodesign regulations (called "circumvention").

"ANTICSS objectives are (i) to assess and define "circumvention" in order to achieve a better product positioning in relation to EU Ecodesign and Energy labelling legislation and relevant harmonised standards; this includes clear delimitation from other effects to facilitate unambiguous public (media) communication; (ii) to collect, analyse and learn from cases of circumvention by literature research and dedicated expert interviews, as well as analysing existing EU Ecodesign and Energy labelling legislation and standardisation for possible loopholes. The potential relation between circumvention and "smart" products with specific embedded software will be also addressed."

Further information can be found under https://cordis.europa.eu/project/rcn/213579_en.html

We need your support through this questionnaire because we want to collect already identified circumvention cases and cases of suspect behaviour that may hide circumvention, which aren't yet to find in the literature. Our goal is to understand and delimitate "circumvention" from other effects found when testing products in order to achieve a detailed understanding of what "circumvention" means.

Disclaimer

This survey is part of the ANTICSS project that receives funding from the European Union's Horizon 2020 Research and Innovation programmes Societal Challenges under grant agreement no 785122.

The content of this survey does not necessarily reflect the official opinion of the European Union. Responsibility for the information and views expressed therein lies entirely with the authors.



Questionnaire

Please report any cases of suspect behaviour of a product model under testing you know about and send us information about it!

Multiple responses are allowed. Please fill out one questionnaire per case.

1. General information

1.a Contact data

Institution: _____

Name: _____

E-Mail: _____

Phone number: _____

1.b Where do you get the data from? (Multiple answers allowed)

- Own research
- Other research
- Own testing
- Public news/ media
- Social media (Twitter, Facebook etc.)
- Business contacts
- Personal contacts
- Others: _____

2. Technical information

2.a Which product was affected?

Heating/ Ventilation/ Air-conditioning

- | | |
|--|--|
| <input type="checkbox"/> Boilers and combi boilers | <input type="checkbox"/> Solid fuel boilers |
| <input type="checkbox"/> Water heaters | <input type="checkbox"/> Local space heaters |
| <input type="checkbox"/> Room air conditioning | <input type="checkbox"/> Air-conditioning and ventilation systems |
| <input type="checkbox"/> Comfort fans | <input type="checkbox"/> Central heating products (other than CHP) |
| <input type="checkbox"/> Residential ventilation | |



Electronic equipment

- | | |
|--|--|
| <input type="checkbox"/> PCs (desktops and laptops) | <input type="checkbox"/> Simple set-top boxes |
| <input type="checkbox"/> Consumer electronics: TV | <input type="checkbox"/> Complex set-top boxes |
| <input type="checkbox"/> Standby and off-mode losses | <input type="checkbox"/> Imaging equipment |
| <input type="checkbox"/> Battery chargers, external power supplies | <input type="checkbox"/> Networked standby losses of energy using products |

White goods

- | | |
|--|---|
| <input type="checkbox"/> Domestic refrigerators | <input type="checkbox"/> Vacuum cleaners |
| <input type="checkbox"/> Domestic freezers | <input type="checkbox"/> Domestic and commercial ovens |
| <input type="checkbox"/> Domestic dishwashers | <input type="checkbox"/> Non-tertiary coffee machines |
| <input type="checkbox"/> Domestic washing machines | <input type="checkbox"/> Household tumble dryers |
| <input type="checkbox"/> Domestic washer/dryer | <input type="checkbox"/> Professional refrigerated storage cabinets |
| <input type="checkbox"/> Domestic and commercial hobs / grills | |

Lighting

- | | |
|--|---|
| <input type="checkbox"/> Office lighting | <input type="checkbox"/> Domestic lighting, non-directional lamps |
| <input type="checkbox"/> Street lighting | <input type="checkbox"/> Domestic lighting, directional lamps |

Industrial applications

- | | |
|--|---------------------------------------|
| <input type="checkbox"/> Electric motors | <input type="checkbox"/> Water pumps |
| <input type="checkbox"/> Circulators | <input type="checkbox"/> Transformers |
| <input type="checkbox"/> Fans | |

2.b Please specify brand and the model number of the product.

2.c Timing: When did the suspect behaviour occur?

2.d Which aspect of the product do you consider a suspect behaviour?

- Energy consumption
- Non-energy performance measurement(s)
- Noise measurement
- Other: _____



2.e Why did/do you consider this behaviour as “suspect”? (Multiple answers allowed)

- Suspect presence of hidden software to alter the response of the product under testing conditions
- Unexpected or non-declared use of sensors
- Product behaves differently in testing environment compared to expected normal behaviour in ‘real life’
- Specific unusual testing scenario/testing results
- Product declaration/information different from test results
- Unexpected interpretation of test procedure to achieve a better product result (potential circumvented test procedure)
- Unexpected interpretation of the legislation to achieve a better product positioning (potential circumvented legislation)
- Other: _____

2.f Please describe as detailed as possible what is the suspect behaviour in your opinion

2.g Which regulation(s) or standard(s) do apply in this case?

EU Regulation: _____

Standard: _____

Others: _____

3. Following actions

3.a Please describe the reaction to the above mentioned case (e.g. report to authorities, contact with manufacturer, contact with national standardisation body)!



3.b Please describe the reaction of the subject who was contacted and the given explanation to the suspect behaviour (if any)!

4. Personal considerations

4.a Do you consider this to be a case of “circumvention”?

- Yes
- No

4.b Why do you consider this to be a case of “circumvention”?

- Use of defeat device (e.g. hidden software to alter the response of the product under testing)
- Product behaves differently in testing environment compared to “real life” behaviour
- Specific unusual testing scenario/results
- Others: _____

4.c How would you classify the described behaviour?

- Deliberate misrepresentation through identification of test procedure
- Exploitation of regulatory loopholes
- Exploitation of standardisation loopholes
- Significant difference between product performance measured vs. performance perceived by consumers in daily life

5. Information handling

The above collected data will be handled anonymously, unless stated otherwise here. Should the data be further treated anonymously or could they be published with the source of supply?

- Further treatment anonymously
- Publication with source of supply of information (your name and institution), but product will stay anonymous
- Publication with source of supply of information and name of product possible



End of questionnaire

Please send the completed questionnaire **and any related material** back until the **15th of May 2018** to:

Prof. Dr. Rainer Stamminger

University of Bonn

Institute of Agricultural Engineering - Household and Appliance Technology Section

Nussallee 5

D-53115 Bonn

E-Mail: Stamminger@uni-bonn.de

Information about cases, which occur or are reported after this deadline, is also appreciated.

Thank you for your participation!



Contact:

www.anti-circumvention.eu

<https://twitter.com/anticircumvent>

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List of project partners:

Italy: ENEA- Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

Austria: AEA - Österreichische Energieagentur

Italy: CCIAA Mi - Camera di commercio industria artigianato agricoltura

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

Spain: CM - Comunidad de Madrid

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

Czech Republic: SEIA - Státní energetická inspekce

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

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

Germany: GRS - Regierung von Schwaben – Gewerbeaufsichtsamt

Germany: UBONN - Rheinische Friedrich-Wilhelms-Universität Bonn

Austria: BMWFV - Bundesministerium für Wissenschaft, Forschung und Wirtschaft

Italy: IMQ - Istituto Italiano del Marchio di Qualità S.p.A.

Germany: VDE - VDE Prüf- und Zertifizierungsinstitut GmbH

Netherlands: Re/gent - Re/gent B.V.

Netherlands: NVA - Nederlandse voedsel en warenautoriteit

Portugal: ADENE - Adene-agencia para energia

Portugal: ASAE - Autoridade seguranca alimentar e economica