

# Testing of WM for the purpose of compliance to Ecodesign and Energy Labelling implementing measures

## DRAFT VERSION 1

Standard testing option	BAU	New testing: ECO
<p><b>Basic description</b></p>	<p>Testing for the purpose of energy labelling and ecodesign involves the use of two programmes for a total of 7 runs:</p> <ul style="list-style-type: none"> <li>* 2 times 'standard cotton 40 °C programme' with half the load (compared to the rated capacity)</li> <li>* 2 times 'standard cotton 60 °C programme' with half of the load</li> <li>* 3 times 'standard cotton 60 °C programme' with the full load.</li> </ul> <p>No measurement of the real temperature in the load is prescribed (Ecodesign Regulation 1015/2010: <i>"the actual water temperature may differ from the declared cycle temperature".</i>)</p> <p>These 40°C and 60°C standard programmes are <i>"suitable to clean normally soiled cotton laundry"</i> and <i>"the most efficient programmes in terms of combined energy and water consumption"</i></p> <p>The machine must, on the standard programmes tested, have an average wash efficiency index <math>\geq 1.03</math> (measured as the ratio between the cleaning performance of the tested machine and of the</p>	<p>A new so-called ECO programme is tested.</p> <p>This programme shall be able to clean <u>normally soiled</u> cotton laundry that is declared on the textile label to be washable <u>at 40°C and/or 60°C together</u> in the same cycle.</p> <p>In the preparatory study, a variant ECO+ has been also defined, able to clean <u>lightly soiled</u> cotton laundry declared to be washable at <u>30°C, 40°C and/or 60 °C</u> together in the same cycle. This option is set aside in this revision, due to the lack of evidence and consensus on the definition of lightly soiled textiles, as well as the cleaning performance of those clothes.</p> <p>Ideally, ECO will be used with high loads, as consumers can combine bundles which normally need to be washed separately. This allows consumers to profit from the higher efficiency of appliances at higher loads. It also takes into account that over the last two decades, the average capacity of the stock of appliances in the EU is higher.</p> <p>Consumers using these programmes will need to wash less often, and spare time and resources.</p>

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<b>Additional elements</b>		<p>In the programmes above, performance of the appliance at 60°C is not tested for the purpose of labelling.</p> <p>Cotton 60°C is on average used currently in ca. 15% of washes in the EU, although this high temperature is barely used in other world regions.</p> <p>To ensure that this programme is present in machines, and is efficient, an ecodesign requirement is proposed prescribing the presence of a Cotton 60°C programme, and maximum energy consumption thresholds for it.</p>
<b>Advantages and challenges compared to BAU</b>		
<b>- energy consumption in 2030</b>	BAU: 28-29 TWh/yr	~4 TWh/yr less than BAU
<b>- water consumption in 2030</b>	BAU: ~2000 million m <sup>3</sup> /yr	~110 million m <sup>3</sup> /yr less than BAU
<b>- priority of the option</b>		<p>Emphasis is on achieving energy savings in the EU, based on known best washing practices</p> <p>Secondary is to create ample competition conditions for manufacturers, because label classes will likely move in a narrower range, with less market differentiation (see below).</p>
<b>- market differentiation of energy classes</b>		<p>Likely lower, as in the label, the average consumption per appliance tested will be lower than today (mainly because no 60°C programme is tested for the label). Appliance classes on the market will likely cluster on a narrower range of energy classes. This has also technical challenges related to measurement uncertainty ranges.</p>
<b>- test programme representativeness of average appliance</b>		<p>Some trade-offs compared to BAU:</p> <ol style="list-style-type: none"> <li>1. The ECO programmes would have relatively low temperatures (&lt;40°C), which follows the trend observed in the past years in the EU</li> <li>2. The typical washing behaviour in the EU households is characterised by lightly</li> </ol>

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<b>programme performance</b>		soiled laundry, and partial loading 3. High temperature programmes (60°C) are not tested for the label, but have to be present in the machine, and efficient.
<b>- likely use in real life of the testing programmes</b>		Higher potential than BAU, but a degree of persuasion will be necessary to achieve the energy savings, because the testing framework proposed is somehow innovative. Marketing and communication activities are thus needed to exploit the potential of this option to the full extent. The additional requirement on more transparent communication programme duration and temperature declaration will improve the user acceptance
<b>Load for testing</b>	* 2 times 40 °C half load * 2 times 60 °C half load * 3 times 60 °C full load.	Manufacturers shall be stimulated to develop machines that are better at adapting energy and water consumption to the laundry load. To ensure this, more testing on partial loads is proposed:  <u>ECODESIGN</u> 1) Ecodesign requirements for the ECO programme shall be included, to be proposed once a first body of pilot testing results is available. These ED requirements for the ECO shall be based on the testing for the energy labelling and thus not imply additional testing.  2) 60C cotton programme Washing performance >1.03 Full load to rated capacity 3 progressive thresholds for e.g. 2020: 1.2 kWh per full-load wash (absolute value to avoid development of oversized drums) 2022: 1.1 kWh 2025: 1.0 kWh  The 2025 target is currently (2016) met by approximately 1/3 of the market in <3hrs, and by approx. 66% of the market with up to 4hrs. The maximum size of these machines was 8kg (data from Atlete II project) <u>Procedure:</u> 1) 60C cotton programme tested once at full rated capacity

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		<p>(most challenging condition)</p> <ol style="list-style-type: none"> <li>2) if OK (i.e. below threshold) move to EL testing</li> <li>3) if not OK test it 3/5 times (number of testing depending on tolerances)</li> <li>4) if not OK after this-&gt; not compliant</li> </ol> <p>So far, the time-temperature trade-off was registered for the standard programme. The tested programme should reflect as much as possible conditions of real use with no possibility of additional options (e.g. special features activated by buttons). To avoid tradeoffs, two elements can be combined:</p> <ol style="list-style-type: none"> <li>1) generous energy/water consumption thresholds (see above)</li> <li>2) a time cap of 3hrs. This cap may be also designed as progressive (2020, 2022, 2025).</li> </ol> <p>Indication of (a) time and (b) drum water temperature in the user manual will be compulsory.</p> <p><u>ENERGY LABELLING</u></p> <p>Cotton ECO programme only</p> <p>Washing performance in all loads (see further below)&gt;1.03</p> <p>Considering 1 full load is tested for ED of the cotton 60C, there would be 4 additional full loads to test with 6-7 runs:</p> <ul style="list-style-type: none"> <li>- 2 full loads, 2 loads 2/3, 2loads 1/3 (i.e.6 runs)</li> </ul> <p>As alternative:</p> <ul style="list-style-type: none"> <li>- 2 full loads, 3 times 1/2, 2 times 1/4 (i.e. 7 runs); or</li> <li>- 2 full loads, 2 times 1/2, 4 times 1/4 (i.e. 8 runs).</li> </ul> <p>This would ensure the same statistical representativeness of results as in today's measurements</p> <p>Half/quarter of loads could be more intuitive and less problematic for standardisation, if all items of the test load are even multiples of e.g. pillow sheets, towels, etc.</p> <p>Third loads (1/3, 2/3) would allow keeping the number of runs lower, and still test</p>

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		<p>reasonably the machines capacity to adapt to low loads.</p> <p>The reporting of values in the label is still to be discussed in detail. The two main options are:</p> <p>1) Full transparency of consumption of loads: three arrows with full, 2/3 and 1/3 (or 1/2 and 1/4 if this splitting in quarters is chosen). This overloads slightly the label, and makes it less intuitive and understandable at first sight. Once understood, it provides rich and valuable information, and helps communicate to consumers that larger loading saves energy</p> <p>2) Average consumption. The consumption value of the test is a weighted average of the values obtained for different loads. This is less transparent and penalises good performers in load adaptation, but is more straightforward. An ED requirement on the low load may complement this option to avoid too much play margin with averaging.</p> <p>There is additionally the option of reporting in the label the worst performant of all loads, but this has similar advantages and disadvantages to option (2) above.</p> <p>Average of all runs is basis for declaration (no individual limit)</p> <p>Data foreseen on the label:</p> <ul style="list-style-type: none"> <li>- EEI , and classes. Reference SSEC to be updated.</li> <li>- average energy in kWh/kg of all three loads if option (1) is chosen, avg if option (2) is chosen.</li> <li>- average water consumption in L/kg of all three loads if option (1) is chosen, avg if option (2) is chosen.</li> <li>- time in h:min of all three loads if option (1) is chosen, avg or the longest of the loads if option (2) is chosen</li> <li>- average RMC (in classes as today)</li> <li>- Washing performance <math>\geq 1,03</math></li> <li>- Noise for washing and spinning (as today)</li> <li>- Tolerances: as today</li> </ul>
<b>Rinsing</b>	No requirement	To be discussed with stakeholders. Minimum rinsing may be required as ED.

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<b>Time</b>	No time requirement	<p>Programme duration for all programmes will be requested in the user manual.</p> <p>Programme duration of the standard testing will be displayed on the Energy Label. This will create competition to also optimise this parameter, and avoid excessively long and never used programmes.</p> <p>In doing this, it is expected that consumers will use the energy optimised standard cotton programmes more often.</p> <p>ADDITIONAL OPTIONAL ELEMENT:  A time cap on the maximum programme time has been proposed in the discussions with stakeholders.</p> <p>For ecodesign, as mentioned above, the time cap for the 60C programme is a means to maintain the usability of the programme by consumers.</p> <p>For the ECO and energy labelling, a maximum duration of 3 hours has been suggested by a number of stakeholders during the technical discussions held. This would be done to further restrict the area where competition can take place to the limits expressed by consumers in their normal washing practice.</p> <p>However, this would increase energy consumption, measured under standard conditions, as temperature is one of the key parameters that can increase to compensate programme duration reduction. This cap would also further reduce the performance difference between appliances on the market, and thus label class differentiation.</p> <p>Additionally, if a cap is set, it is no longer compatible to keep the requirement that 40°C and 60°C standard programmes are <i>"the most efficient programmes in terms of combined energy and water consumption"</i>, as it is known that extension of the duration of 40°C and 60°C cotton programmes beyond 3hr and reduction of temperature can reduce energy consumption.</p>
<b>Temperature</b>	No temperature requirement	<p>A new requirement is proposed:</p> <ul style="list-style-type: none"> <li>-The temperature reached by all programmes in the laundry core shall be indicated in the user manual (if appropriate also on the product fiche)</li> </ul> <p>This is a requirement of transparency towards consumers, and will allow the consumer to know which programmes are suitable for special needs, e.g. to</p>

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		<p>provide a high level of hygiene or protect certain textiles.</p> <p>The correct declaration of the temperature shall not be regulated via ecodesign verification but by liability of manufacturers.</p> <p>A measurement procedure is to be established via standardisation</p>
<b>Performance</b>	Average washing performance for <b>all</b> treatments shall be >1.03.	<p>Average washing performance for <b>each</b> treatment (e.g. 40°C full load consisting of the average of 2 runs) shall be &gt;1.03.</p> <p>This adjustment of the requirement for the performance in all treatments ensures a good washing performance for all standard cotton programmes, and no possibility to play with averages and disregard performance in any of them.</p> <p>NB: as a result of this, the performance of each of the treatments will have to be &gt;1.03. This could result in a marginal energy use increase.</p> <p>Alternatively to this, a weighted average system with appropriate weights that balance the difficulty of reaching the performance threshold can be proposed.</p>
<b>Programme identification</b>	Regulation EU 1015/2010 requires displaying the standard programme on the front of the machine or the standard programme indicator (an empty arrow) on a panel.	<p>The indication of those programmes shall be specified in the regulation by the word ECO, in a similar way as successfully used by dishwashers since 2010. This will indicate to consumers, in a similar way as dishwashers, that these are (energy) saving programmes.</p> <p>In the programme selection knob or menu, the ECO programme must be the first programme proposed. If there is a default programme selection, the ECO shall be the default programme.</p> <p>Once 'ECO' is selected, no additional temperature or time shortening selection shall be possible, to avoid that the characterisation of the programme as energy/water efficient is altered. Additional rinsing choices shall however be possible.</p> <p>The term 'ECO' shall be used as programme identifier independent of the language in use of the product.</p>

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		<p>It is proposed to restrict that other programmes in the machine use the term ECO. There could be other programmes in the appliance that offer higher saving of combined energy and water consumption than ECO (for instance by extending the programme duration), using names such as 'ECO plus' or 'ECO+' . This may create confusion and associate ECO to programmes that are too long, and do not meet the goals of extended use described above for the programme ECO, undermining its energy and water saving potential.</p>