

Explanation of Correction Factor for Automatic Brightness Control

Purpose

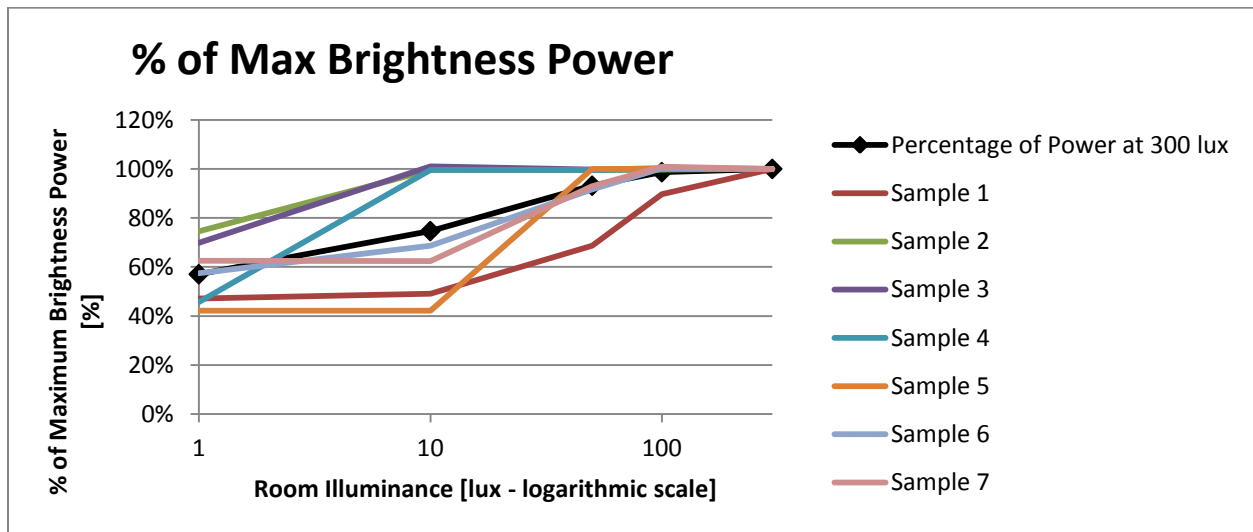
In the interest of transparency and enabling stakeholder and EPA discussion around EPA's proposed approach to developing and implementing this correction factor, EPA is sharing this summary explanation.

Background

EPA is committed to adopting the television test procedure currently under development by the U.S. Department of Energy (DOE). Therefore, in the Draft 2 Version 6.0 Televisions Specification, EPA is proposing the same Automatic Brightness Control (ABC) testing requirements as in the Department of Energy's Test Procedure Notice Of Proposed Rulemaking (NOPR). EPA understands that the new ABC test method will affect the reported On Mode power for Televisions shipped with ABC enabled. In order to preserve the utility of its large dataset and avoid retesting products, EPA has conducted additional research, testing and analysis to provide more information on how this new test method would affect the current Televisions data. EPA then derived a correction factor, which was used to estimate how televisions tested under the old ABC test method would perform under the new method.

Testing

EPA conducted testing on seven different television models representing the major television types, major manufacturers and screen technologies. These seven televisions were tested according to the current ABC test method and the proposed ABC test method. This information was combined to develop an "average ABC response curve" representing the average change in power use as room illuminance changes. This average curve can be seen in the figure in black; while the percentage power at each tested illuminance point is shown in the table, below:



Room Illuminance (lux)	Percentage of Power at 300 lux
0	57.03%
10	74.64%
50	93.15%
100	98.66%
300	100.00%

EPA understands that this average ABC response curve does not perfectly represent the implementation of ABC for all televisions; however, it does provide an appropriate proxy for assessing how the new ABC test procedure might affect the data in EPA's dataset.

Data

The average ABC response curve was applied to all ENERGY STAR qualified televisions that were submitted with ABC enabled (556 models out of the total 1697). The power at each room illuminance (10, 50 and 100 lux) was calculated by multiplying the power at 300 lux as measured for each model by the percent of power at 300 lux for each room illuminance as calculated from the average ABC response curve. Of the data that was adjusted, this increased the reported On Mode Power by an average of 12.9 W with a minimum of -15.4 W and a maximum of 62.1 W. No change was made to models tested and submitted with ABC off.

With this adjustment in place, the dataset was treated as if all televisions had been tested according to the test method as proposed in the Draft 2 Version 6.0 Televisions specification. This method of data adjustment was favored by EPA over an adjustment to the calculation of On Mode Power as proposed in Draft 1. EPA agrees with the stakeholder comments that altering the calculation of On Mode Power in the specification provides data that is incongruous with real world operating conditions and furthermore that the implementation of ABC is generally more complex than a linear relationship between screen brightness and room illuminance.