Calculating and Comparing Ecolabels for Popular Passenger Aircraft

Task for a *Project* according to university regulations.

Background

It can be observed that new passenger aircraft are advertised with many claims about their environmental advantages compared to a reference model and compared to the competition. These advertisement claims are often not verifiable, not based on any reporting standards (due to a lack of such standards), and generally not backed up by any scientific work. For this reason an "Ecolabel for Aircraft" has been defined by students in Bachelor and Master Theses at HAW Hamburg. The idea was also presented at the German Aerospace Conference 2017 (http://bit.ly/2HSTOoj). The goal is to enable the travelling passengers to make an educated choice among different airline offers (with a certain aircraft and a certain seating arrangement) such that the selected (direct) flight is the least damaging to the environment. The "Ecolabel for Aircraft" quantifies energy consumption and pollution by way of index scores or units of measurement. The final result is an overall rating (0 to 1) illustrated by a letter between A (best, green) to G (worse, red).

Task

The task is to calculate all required parameters for the "Ecolabel for Aircraft" (see previous work at HAW Hamburg) for many popular passenger aircraft and to compare and discuss the results. Following subtasks have to be considered:

- Review and finish the definition of the "Ecolabel for Aircraft" as presented by Lynn Van Endert. Take note of her chapter "Recommendations".
- Automate the Excel tool by Van Endert for the ecolabel calculation.
- Include a chapter in your project report that serves as a User Guide for your software.
- Calculate and print Ecolabels for the most popular aircraft.
- Compare and discuss the created Ecolabels and draw your conclusions for an environmentally friendly air transport.

The report has to be written in English based on German or international standards on report writing.