


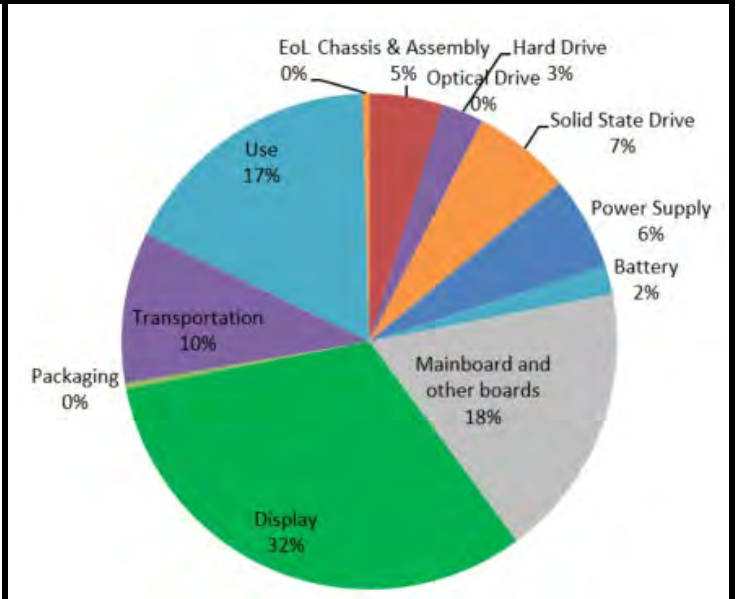
# Lenovo Product Carbon Footprint (PCF) Information Sheet

## PC/Notebook/Monitor/Tablet

|                 |                    |   |
|-----------------|--------------------|---|
| Commercial Name | ThinkPad E590/R590 |  |
| Model Number    | 20NB, 20NC, 20ND   |   |
| Issue Date      | 2018-11-07         |   |

### Product Environmental Attributes

|                                     |  |
|-------------------------------------|--|
| (a) Product Carbon Footprint Value: | <b>429 kg of CO<sub>2</sub>e (see Note 1 below)</b>          |
| (b) Product Picture:                | (c) Life Cycle Detail by Component & Life Stage (Pie Chart): |



**Note 1:**

All estimates of carbon footprint are uncertain. Lenovo reports the 95<sup>th</sup> percentile of the carbon footprint estimate to reflect that uncertainty. For this product, that estimate has a mean of 323 kg of CO<sub>2</sub>e and standard deviation of 63 kg of CO<sub>2</sub>e. For a quantity that follows a normal distribution, the 95th percentile value is equal to the mean plus the standard deviation multiplied by 1.64. Other organizations might report this value as 323 +/- 63 kg of CO<sub>2</sub>e.

This PCF was generated using the Product Attribute to Impact Algorithm model, Version 2017-7-29, Date: 2017-7-29 (Product Type: Notebook), © Massachusetts Institute of Technology's Materials Systems Laboratory, August 2012. Please refer to the Intended Uses and Limitations of the PAIA Model, © Massachusetts Institute of Technology's Materials Systems Laboratory, August 2012 for further details. [Link to Document](#)

This calculation was based upon a Lenovo ThinkPad E590/R590 with the assumptions and configuration described in the calculation assumptions in the next page.

This pie chart provides the percent contribution of the mean value for each element of the analysis for the full life cycle CO<sub>2</sub>e impacts of the product. Individual elements displaying 0% are less than 0.5%.

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| Assumption Table                         |   |          |       |      |          |
|--|---|----------|-------|------|----------|
| Category                                 | Element   | Unit     | Input | Mean | COV      |
| Product Specifics                        | Product Weight                                    | kg       | Input | 2.32 | High COV |
|  | Form Factor                                       | no unit  |       |      |          |
|  | Screen Size                                       | inches   | 15.6  |      |          |
|  | Product Lifetime                                  | years    | Input | 5    | Low COV  |
| Location                                 | Assembly Location                                 | no unit  | CN    |      |          |
|  | Use Location                                      | no unit  | EU    |      |          |
| Transportation from Assembly to Customer | To country of use: by air                         | fraction | Input | 0.5  | Low COV  |
|  | To country of use: by ship                        | fraction | Input | 0.5  | Low COV  |
|  | To country of use: by rail                        | fraction |       |      |          |
|  | To country of use: by truck                       | fraction |       |      |          |
|  | In country of use: by air                         | fraction |       |      | Low COV  |
|  | In country of use: by ship                        | fraction |       |      |          |
|  | In country of use: by rail                        | fraction | Input | 0.2  | Low COV  |
|  | In country of use: by truck                       | fraction | Input | 0.8  | Low COV  |
| End of Life                              | Fraction Recycled (remainder to landfill)         | fraction | 0.8   |      |          |
|  | Fraction Shredded Recycling (remainder to manual) | fraction | 0.77  |      |          |

The PCF value is calculated using the specific attributes above for assembly, use and transportation mode. If you need any other country specific information, please contact [environment@lenovo.com](mailto:environment@lenovo.com).

**Notes:**

Life cycle phases included in the streamlined Product Attribute to Impact Algorithm (PAIA) Life Cycle Analysis (LCA) can be grouped into four categories which include Manufacture, Transport, Use, and End of Life. Below is a brief description of each phase.

Manufacture: This life cycle phase captures emissions generated during the extraction, production, and transport of raw materials, the manufacture of components and subassemblies (including the product packaging) and product assembly.

Transport: Emissions included in the transport phase include all those generated during the air, ocean or land transport of finished or semi-finished Lenovo products between Lenovo facilities and from Lenovo facilities to customers.

Use: In use energy consumption is calculated in accordance with the U.S. Environmental Protection Agency’s Energy Star® Typical Energy Consumption (TEC) methodology. Calculated energy consumption is then used in combination with average emissions factors for the designated country of use to calculate emissions.

End of Life: It is assumed that a designated portion of the product (see table above) is recycled at the end of the use period determined in the TEC methodology. It is also assumed that the balance of the product waste materials is disposed of by landfill. Emissions generated during the mechanical destruction, separation and transport of end of life materials are included in the calculation.

Product scope of this sheet includes desktop computer, integrated desktop computer, notebook computer, monitor and tablet. This document is only valid in connection with “THE ECO DECLARATION” of the specific product.