

# HTC One Carbon Footprint Report

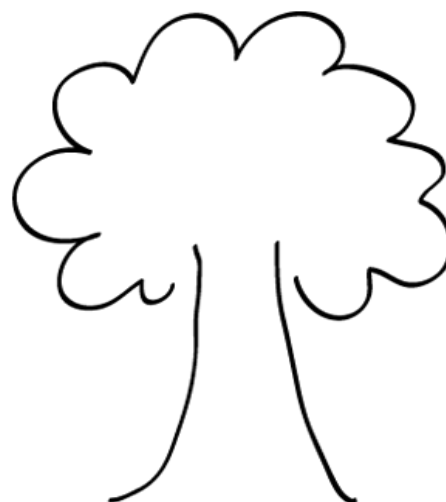


## Summary

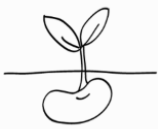
- Type: Smartphone
- Model: New HTC One
- Company: HTC Corporation
- 40.5 kg CO<sub>2</sub>eq /functional unit
- Each function unit includes : Phone, AC Charger, USB cable, Headset and retail Packaging

## Verification

- TUV Rheinland Taiwan
- Certificate No.: CO 50268688 0001
- Verified standards: ISO/TS 14067:2013,PAS 2050:2011, ISO 14040:2006, ISO14044:2006
- Assurance level: Reasonable Assurance Level



2013/10/30

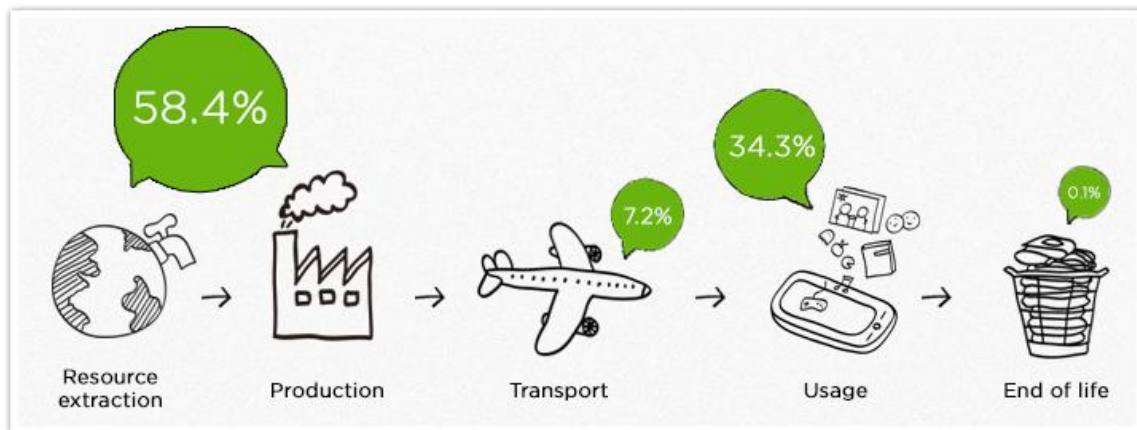


## Product Technical Information

- Size: 137.4 x 68.2 x 9.3 mm
- Display: 4.7 inch, Full HD 1080p
- CPU: Quad-core 1.7GHz
- Memory: Storage 32 GB, RAM 2 GB
- Battery: 2,300mAh Li-polymer battery.
- Camera: HTC UltraPixel Camera with BSI sensor
- Sound: Dual front stereo speakers with built-in amplifiers
- Manufacturing site: No. 23 Xinghua Rd., Taoyuan 330, Taiwan

## Carbon Footprint Emission

- By product life cycle stage :



- Fossil source: 39.63 kg CO<sub>2</sub>eq /functional unit
- Biogenic source: 0.0219 kg CO<sub>2</sub>eq /functional unit

## Overview of LCA Analysis

The carbon footprint analysis was based on a product LCA (Life Cycle Assessment) study with the following scope:

- System boundaries: cradle-to-grave.
- Cut-off criteria: lower than 0.1% for one unit process and the sum shall be not greater than 5% of the carbon footprint.
- Data period: this LCA study was conducted on the product assembly plant and suppliers over a period of 3 months to 1 year.
- Data source: ten suppliers of key components and HTC plant provided site-specific data which is the primary data for this analysis. The analysis also utilized secondary data for upstream manufacturing processes and non-key components taken primarily from the Ecoinvent 2.0 database.
- Exclusion: Non-manufacturing related activity.

## Resource & Production Stage Information

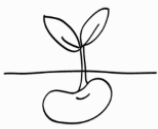
The impacts from the resource and production stages included the following two components:

- Raw material manufacturing: Extraction, manufacturing and transportation of raw materials.
- Product manufacturing: Processing of parts and components, and product assembly, etc.

## Transportation Stage Information

After assembly in the manufacturing plant in Taiwan, the products are shipped to major markets. The scenario for evaluating the impact of the transportation stage is based on the following:

- Transportation distance to each major market's distribution center and the percentage of total products shipped to each site.
- Based on the weighted calculation for the major markets, the average transportation distance is 8,724 km by air and 47km by road.
- Most of the carbon footprint is from air transportation, which represents 99.94% of emissions in this stage.



### Use Stage Information

The use stage power consumption for each unit of product is based on the consumer daily usage scenario below.

- The product has a service life of 3 years and is charged for 8 hours once the battery is empty.
- The total power consumption is 13.9 kWh for three years use.
- The power consumption is calculated based on the power grid mix and product shipping ratio of the same major markets that were used in the analysis for transportation stage.

### End-of-Life Stage Information

The end-of-life stage impact from each unit of product was assessed based on the result of product's Reuse, Recycling and Recovery assessment which conducted by a third party and the treatment condition below

- Reuse & Recycling Rate = 81.2%; Recovery Rate = 83.1%
- Reuse & Recycling are treated as open loop recycling system which does not return to the product system and its impacts from treatment system not included.
- Energy Recovery and Disposal are treated as disposal and its impact is included in the impact assessment.

### Data Quality Information

The quality of the data may be divided into three categories: measured value, calculated value and estimated value. The results of this inventory study are mostly based on measured values and calculated values.

### Conclusion

According to carbon footprint analysis by life cycle stage, the following stages have the most carbon emissions and shall be prioritized for reduction.

- Resource & Production stage: improve efficiency in the manufacturing processes of HTC and suppliers of key components.
- Use stage: make the phone more power efficient and extend use time.

### Limitation and Disclaimer

- This carbon footprint analysis only focused on climate change as the single impact category.
- The results of this analysis cannot be compared to other products due to limitations of LCA methodology.

### References

- ISO/TS 14067 , "Greenhouse gases - Carbon footprint of products - Requirement and guidelines for quantification and communication" , first edition , 2013-05-15
- ISO 14040 , "Environmental management - Life cycle assessment - Principles and framework" , second edition , 2006-07-01
- ISO 14044 , "Environmental management - Life cycle assessment - Requirements and guidelines" , first edition , 2006-07-01
- BSI PAS 2050 : 2011 , "Specification for the assessment of the life cycle greenhouse gas emissions of goods and services" , 2011



# Product Carbon Footprint Verification Statement

Statement: CO 50268688 0001

Verification Report No.: 14006480 001



**HTC Corporation**

No. 23, Xinghua Road TAOYUAN, 330. Taiwan

The inventory of Smart Phone product life cycle GHG emissions in year 2013 of HTC Corporation

- Address: No. 23, Xinghua Road TAOYUAN, 330. Taiwan

has been verified in meeting the following requirements:

- Standards: ISO/TS 14067:2013, PAS 2050:2011, ISO 14040:2006, ISO 14044:2006


Following activities were conducted during verification:

- Document review, interview, site visit and recalculation

Based on the information we have received and evaluated, it was verified by TÜV Rheinland Taiwan that:

- The level of assurance carried out in this GHG verification was agreed by both parties is Reasonable Assurance Level.
- Required materiality of the verification is 5% and GWP value is following IPCC 2007 Report. Data and information, which support this GHG verification, are from historical in nature.
- System boundary of this product: Cradle to Grave
- LCA software or database: SimaPro Ver. 7.3.3 / Ecoinvent 2.0
- Product carbon footprint inventory report period: May. 1, 2012 to Jun. 30, 2013.
- Product and function unit: one set of Smart Phone, include Accessories (Charger, USB cable, headset) and Retail Packaging
- Model no. and GHGs emissions: New HTC One / 40.50 kg of CO<sub>2</sub> equivalent
  - Smart phone(not include accessories and retail packaging): 34.74 Kg CO<sub>2</sub>e,
  - Charger: 4.00 Kg CO<sub>2</sub>e
  - USB cable: 0.26 Kg CO<sub>2</sub>e
  - Headset: 0.10 Kg CO<sub>2</sub>e
  - Document: 0.03 Kg CO<sub>2</sub>e
  - Retail packaging: 1.37 Kg CO<sub>2</sub>e
- This statement is valid from 2013/10/30 until 2015/10/30

Date of Issue 2013/10/30  
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**Jason J. S. Wu**  
TÜV Rheinland Systems Greater China  
2013/10/30

This Verification Statement is based on the information made available to TÜV Rheinland Taiwan and the engagement conditions detailed above. Therefore, TÜV Rheinland Taiwan can not guarantee the accuracy or correctness of this information. TÜV Rheinland Taiwan can not be held liable by any party relying on or acting upon this Verification Statement.