

# Product Carbon Footprint Verification Statement

**The Inventory of Product Carbon Footprint of  
4G LTE Dual-Band Module**

which is calculated by

**Universal Scientific Industrial  
(Shanghai) Co., Ltd.**

No. 1558, Zhang Dong Road, Zhangjiang Hi-Tech Park, Shanghai,  
P.R. China

Based on life cycle assessment verified in accordance  
with ISO 14064-3:2006 as meeting the requirements of

**ISO/TS 14067:2013**

**Basis of Assessment**

Cradle-to-Gate

Authorized by



David Huang

Director

Date: 22 November 2017

Version 1

TGP 5615C-13 1705

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Statement TW17/00268CFP, continued

The emission of each product is described as below:

Product Name	4G LTE Dual-Band Module			
Verification Unit	per PCS			
Functional Unit	per PCS			
Model / SKU	Life cycle GHG emissions			
Unit	Verification Unit (Unit: kilograms of CO <sub>2</sub> e)			Functional Unit emissions (Unit: kilograms of CO <sub>2</sub> e)
Life Cycle Stage	Material	Manufacture	Total	
4G LTE Dual-Band Module	6.010	0.548	6.56	6.56

## Statement TW17/00268CFP, continued

SGS has been commissioned by Universal Global Scientific Industrial CO., Ltd. (hereinafter referred to as “UG (Taiwan)” ), NO. 135, Lane 351, Sec.1, Taiping Road, Tsaotuen, Nantou, Taiwan to conduct the life cycle Greenhouse Gas (hereinafter referred to as “GHG”) emissions verification of 4G LTE Dual-Band Module provided by Universal Scientific Industrial (Shanghai) Co., Ltd. (hereinafter referred to as “USI (Shanghai)” ), No. 1558, Zhang Dong Road, Zhangjiang Hi-Tech Park, Shanghai, P.R. China in accordance with ISO 14064-3:2006 against the requirements of

### **ISO/TS 14067:2013**

#### **Roles and responsibilities**

The management of USI (Shanghai) is responsible for the organization’s GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of the life cycle GHG emissions for product information and the reported life cycle GHG emissions of the product.

It is SGS’s responsibility to express an independent GHG verification opinion on the life cycle GHG emissions of the product.

SGS conducted a third party verification of the provided GHG assertion against the principles of ISO/TS 14067:2013, PAS 2050: 2011, ISO 14064-3: 2006, ISO 14040: 2006 and ISO 14044: 2006 in the period 15 July 2017 to 19 October 2017. The verification was based on the verification scope, objectives and criteria as agreed between UG (Taiwan) and SGS.

#### **Level of Assurance**

The level of assurance agreed is that of reasonable assurance.

#### **Scope**

UG (Taiwan) has commissioned an independent verification by SGS Taiwan of the reported Cradle-to-Gate life cycle GHG emissions associated with the sourcing of raw materials and manufacture of the product, to establish conformance with PAS 2050 principles within the scope of the verification as outlined below.

This engagement covers verification of GHG emissions from Cradle-to-Gate life cycle assessment within the system boundary defined by PAS 2050:2011.

- Title or description of activities : Product carbon footprint verification of the Cradle-to-Gate life cycle GHG emissions of 4G LTE Dual-Band Module.

## Statement TW17/00268CFP, continued

- Product Category Rule : Nil.
- Functional unit : per PCS
- System boundary : Covers a Cradle-to-Gate assessment of the full life cycle emissions; the system boundary was clearly defined in accordance with ISO 14040:2006 and PAS 2050:2011. All GHG's enlisted on Appendix A of the PAS 2050:2011.
- Data resources : The primary data collection is from manufacturing and operational control phases. The secondary data collection is from Carbon Footprint Calculation Platform, Ecoinvent v3.0.
- Life cycle assessment tool and index :
  - Life cycle emissions are calculated by Excel and Simapro v8.3.0.
  - IPCC 2013 AR5 GWP values are applied in this inventory.
- Manufacturing location :
  - No. 1558, Zhang Dong Road, Zhangjiang Hi-Tech Park, Shanghai, P.R. China
- Types of GHGs included : CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, Substances controlled by the Montreal Protocol, HFCs, PFCs, Fluorinated ethers, Perfluoropolyethers, Hydrocarbons compounds.
- GHG information for the following production period was verified : 01 January 2016 to 31 December 2016.
- Intended use of the verification statement : Private.

### **Objective**

The purpose of this verification exercise is, by review of objective evidence, to independently review:

- Whether the life cycle GHG emissions of the product are as declared by the organization's GHG assertion.
- The data reported is accurate, complete, consistent, transparent and free of material error or omission.

### **Criteria**

Criteria against which the verification assessment is undertaken is the principles of ISO/TS 14067:2013 and PAS 2050:2011.

### **Materiality**

The materiality required of the verification was considered by SGS to 5%, based on the needs of the intended user of the GHG Assertion.

## Statement TW17/00268CFP, continued

### Conclusion

USI (Shanghai) provided the GHG assertion based on the requirements of ISO/TS 14067:2013 and PAS 2050:2011. The data had been verified by SGS to a reasonable level of assurance, consistent with the agreed verification scope, objectives and criteria.

The GHG emission of each product is described as below:

Product Name	4G LTE Dual-Band Module			
Verification Unit	per PCS			
Functional Unit	per PCS			
Model / SKU	Life cycle GHG emissions			
Unit	Verification Unit (Unit: kilograms of CO <sub>2</sub> e)			Functional Unit emissions (Unit: kilograms of CO <sub>2</sub> e)
Life Cycle Stage	Material	Manufacture	Total	
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SGS's approach is risk-based, drawing on an understanding of the risks associated with reporting the life cycle GHG emissions of product information and the controls in place to mitigate these risks. Our examination included assessment and a test of evidence relevant to the amounts and disclosures in relation to the reported life cycle GHG emissions of the product.

We planned and performed our work to obtain the information, explanations and evidence that we considered necessary to provide a reasonable level of assurance that the life cycle GHG emissions per 4G LTE Dual-Band Module are fairly stated.

We conducted our verification with regard to the GHG assertion of USI (Shanghai), which included assessment of the company GHG information system, monitoring and reporting protocol. This assessment included the collection of evidence that support the reported data and verification of whether the provisions of the protocol reference were consistently and appropriately applied.

In SGS's opinion, the presented GHG assertion :

- is materially correct and is a fair representation of the GHG data and information, and
- is prepared in accordance with ISO/TS 14067:2013 and PAS 2050: 2011 in relation to GHG quantification, monitoring and reporting.

### Confidentiality

The reports and attachments may contain relevantly confidential information of the clients. In addition to being submitted as governmental application or certification documents, the reports and

## Statement TW17/00268CFP, continued

attachments are not allowed to be edited, duplicated, or published without the clients' agreement in written form.

### **Avoidance of Conflict of Interest**

The reports and attachments are completely complied with the standards and procedures that related-authorities established. The reports and attachments of auditing process are conduct with fairness and honesty. If not, the auditing institution not only has to bear the relevant compensation duties, but also to receive legal charge and punishment.

### **Verifier Group**

Above statements coincide with auditing process with fairness and impartiality, and aim at the emission of clients.

Lead Verifier:

*Kyle Lu.*

Verifier:

*Belinda Shih*

This statement shall be interpreted with the GHG assertion of USI (Shanghai) as a whole. This result shall be valid for a maximum period of two years, after which the GHG emission shall be re-assessed.

Note: This Statement is issued, on behalf of Client, by SGS Taiwan Ltd. ("SGS") under its General Conditions for Green Gas Verification Services available at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm). The findings recorded hereon are based upon an audit performed by SGS. A full copy of this statement, the findings and the supporting Carbon Footprint Assertion may be consulted at Universal Scientific Industrial (Shanghai) Co., Ltd., No. 1558, Zhang Dong Road, Zhangjiang Hi-Tech Park, Shanghai, P.R. China. This Statement does not relieve Client from compliance with any bylaws, federal, national or regional acts and regulations or with any guidelines issued pursuant to such regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its Client.