查驗意見編號 TW24/00684GG

溫室氣體查驗意見

2023 年溫室氣體排放資訊

環隆科技(越南)責任有限公司

越南，北江省，越安市，光洲坊，光洲工業區 B(B1)區

經本公司依據 ISO 14064-3:2019 完成查驗並符合下列標準要求

ISO 14064-1:2018

直接溫室氣體排放量
128.7579 公噸二氧化碳當量
間接溫室氣體排放量
2,325.4766 公噸二氧化碳當量
直接與間接溫室氣體總排放量
2,454.234 公噸二氧化碳當量

簽署人

鮑柏宇
管理與保證事業群副總裁
日期: 2024年10月08日
版次:1

TGP56B-15-1 2404
台灣檢驗科技股份有限公司
新北市五股區(新北產業園區)五工路 136 之 1 號
t (02) 22993279 f (02)22999453 www.sgs.com

【全廠各類別溫室氣體排放量】 單位：公噸二氧化碳當量

報告邊界			溫室氣體排放量
類別		內容說明	
直接溫室氣體排放		固定燃燒直接排放	3.8960
		移動燃燒直接排放	0.9530
		工業製程直接製程排放及移除	0.0001
		人為系統中溫室氣體釋放產生直接逸散排放	123.9088
		土地利用變更和森林直接排放和移除	0.0000
間接溫室氣體排放	輸入能源溫室氣體排放	輸入能源的間接溫室氣體排放，包含電力	1,850.4976
	運輸溫室氣體排放	不顯著	NA
	組織使用產品溫室氣體排放	採購商品與服務的間接溫室氣體排放，包含汽油、柴油、電力與自來水的上游以及廢棄物處理、廢水處理與廢棄物運輸。	474.9790
	使用來自於組織產品溫室氣體排放	不顯著	NA
	其他來源溫室氣體排放	不顯著	NA
直接與間接溫室氣體總排放量			2,454.234

台灣檢驗科技股份有限公司(以下簡稱SGS)，經與環隆科技股份有限公司(以下簡稱環隆科技)，台中市工業區27路3號，達成雙邊協議，針對環隆科技(越南)責任有限公司(以下簡稱環隆科技(越南))，越南，北江省，越安市，光洲坊，光洲工業區B(B1)區，依據ISO 14064-3:2019之要求執行直接與間接溫室氣體排放量之查驗，查驗意見內容說明如下：

角色與責任

- 環隆科技(越南)管理階層確保組織溫室氣體資訊系統之發展、紀錄維護及文件化程序已符合標準要求，負責評估、決定及報告溫室氣體排放量資訊。
- 簽約時間：SGS 秉持第三方查驗單位之準則，依據 2024 年 02 月 01 日簽訂雙邊協議
- 查驗準則：
  - ISO 14064-1:2018 溫室氣體－第 1 部：組織層級溫室氣體排放與移除之量化及報告附指引之規範
- 查驗期間：2024 年 09 月 04 日至 2024 年 09 月 24 日

查驗範圍

- 溫室氣體排放量資訊涵蓋週期：2023 年 01 月 01 日至 2023 年 12 月 31 日
- 包含廠區：

廠區	活動範圍地理位置
越南廠	越南，北江省，越安市，光洲坊，光洲工業區 B(B1)區

- 排放溫室氣體種類：二氧化碳(CO_2)、甲烷(CH_4)、氧化亞氮(N_2O)、氫氟碳化物(HFCs)、全氟碳化物(PFCs)、六氟化硫(SF_6)、三氟化氮(NF_3)
- 全球暖化潛勢(GWP)引用 IPCC 2021 第六次評估報告之全球暖化潛勢值
- 排放係數資料庫來源:
  - 直接溫室氣體排放：溫室氣體排放係數管理表 6.0.4 版
  - 間接溫室氣體排放：
    - 輸入能源之電力排放係數引用越南自然資源環境部 2024 年公布之 2022 年越南電網係數: 0.6766 噸二氧化碳當量/MWh 計算
    - 二級資料庫引用產品碳足跡資訊網、Simparo 9.4/Ecoinvent 3.8、2023 UK Government GHG Conversion Factors for Company Reporting 、2021 UK Government GHG Conversion Factors for Company Reporting.
- 保證等級：依據查驗準則及雙邊協議執行查驗程序，針對環隆科技(越南)之溫室氣體聲明，給予有限保證等級。
- 實質性差異門檻判斷準則：5%
- 盤查清冊版本次：20240924
- 盤查報告書版本次：20240924
- 查驗意見之預期使用者：組織自行使用

查驗目標

SGS獨立客觀的取得支持溫室氣體聲明揭露資訊的佐證，確保報告資訊符合準確性、完整性、一致性及透明度之準則，其內容包含錯誤或遺漏之項目。

結論

SGS 採用以風險評估為基礎之方法，確保並控管溫室氣體排放資訊揭露風險；規劃及執行查驗流程，包含行前評估、取樣計畫、證據之蒐集，取得查驗意見需要之資訊、說明及相關佐證，確保溫室氣體聲明中的現場溫室氣體排放量無實質的錯誤聲明。

- 查驗數據結果：
  - 溫室氣體總排放量為 2,454.234 公噸二氧化碳當量
  - 生質燃燒之二氧化碳排放量為 0.0000 公噸二氧化碳當量

【全廠各類別溫室氣體排放量】 單位：公噸二氧化碳當量

報告邊界			溫室氣體排放量
類別		內容說明	
直接溫室氣體排放		固定燃燒直接排放	3.8960
		移動燃燒直接排放	0.9530
		工業製程直接製程排放及移除	0.0001
		人為系統中溫室氣體釋放產生直接逸散排放	123.9088
		土地利用變更和森林直接排放和移除	0.0000
間接溫室氣體排放	輸入能源溫室氣體排放	輸入能源的間接溫室氣體排放，包含電力	1,850.4976
	運輸溫室氣體排放	不顯著	NA
	組織使用產品溫室氣體排放	採購商品與服務的間接溫室氣體排放，包含汽油、柴油、電力與自來水的上游以及廢棄物處理、廢水處理與廢棄物運輸。	474.9790
	使用來自於組織產品溫室氣體排放	不顯著	NA
	其他來源溫室氣體排放	不顯著	NA
直接與間接溫室氣體總排放量			2,454.234

- 查驗意見：SGS 根據下述狀況，提出修正後無保留意見之查驗意見。
  - 查驗者有充分且適當的證據支持實質的排放量、移除量或儲存。
  - 查驗者針對實質的排放量、移除量或儲存採取適當的準則。
  - 當查驗者擬依賴相關管制時，管制之有效性已經過評估。
  - 查驗者採用 ISO 14064-1:2018 準則，經查驗有以下發現事項，然經調整修正後，無產生實質性錯誤。
    - 部分排放源的活動數據收集與量化請依照實際情況進行計算，如化糞池、焊接作業
    - 排放係數請依照設施類型進行適當引用，如堆高機
- 保留限制：無

保密性聲明

此報告及附件可能包含屬於環隆科技(越南)之機密資訊，未經環隆科技(越南)書面同意，其他個人、團體或公司禁止自行複製或發行。

利益衝突迴避聲明

此報告及附件內容完全依照主管機關之標準方法與程序等相關規定，秉持公正、誠實進行查驗作業。絕無虛偽不實，如有違反，就政府機構所受損失願負連帶賠償責任之外，並接受主管機關依法令所為之行政處分及刑事處罰。

所有查驗人員瞭解如自身受政府機關委任從事公務，亦屬於刑法上之公務員，並瞭解刑法上圖利罰、公務員登載不實偽造公文書及貪污治罪條例之相關規定，如有違反，亦為刑法及貪污治罪條例之適用對象，願受最嚴厲之法律制裁。

本公司與受查驗單位並無財務投資之關係，且符合主管機關對利益衝突迴避之要求。如有違反前述事實情事，經主管機關查證屬實時，此報告及附件內容願接受主管機關判定為無效之處分。

查驗團隊

上述意見係查驗團隊依據公正之查驗過程所提出之意見。

主導查驗員：李修賢

查　驗　員：湯程凱　郭志遠

Opinion TW24/00684GG

Greenhouse Gas Verification Opinion

The inventory of Greenhouse Gas emissions in year 2023 of

UMEC VIETNAM COMPANY LIMITED

Lot B(B1), Quang Chau Industrial Park, Quang Chau Ward, Viet Yen Town,
Bac Giang Province, Vietnam

has been verified in accordance with ISO 14064-3:2019 as meeting the requirements of

ISO 14064-1:2018

Direct emissions
128.7579 tonnes of CO_2e
Indirect emissions
2,325.4766 tonnes of CO_2e
Direct emissions and indirect emissions
2,454.234 tonnes of CO_2e

Authorized by

Stephen Pao
Business Assurance Director
Date: 08 October 2024
Version 1

TGP56B-15-1 2404
SGS Taiwan Ltd.
No. 136-1, Wu Kung Road, New Taipei Industrial Park, Wu Ku District,
New Taipei City 24803, Taiwan
t (02) 22993279 f (02)22999453 www.sgs.com

The emission of each category is described as below: Unit: tonnes of CO_2e

Reporting Boundaries			GHG Emissions
Inventory categories		**Description**	
Direct emissions		Direct emissions from stationary combustion	3.8960
		Direct emissions from mobile combustion	0.9530
		Direct process emissions and removals from industrial processes	0.0001
		Direct fugitive emissions arise from the release of GHGs in anthropogenic systems	123.9088
		Direct emissions and removals from land use, land use change and forestry	0.0000
Indirect emissions	Imported energy	Indirect emissions from imported energy including electricity	1,850.4976
	Transportation	Not significant	NA
	Products used by an organization	Indirect emissions from goods and service purchased including upstream of gasoline, diesel, electricity and tap water, and waste transportation, drain water treatment and waste treatment	474.9790
	Associated with the use of products from the organization	Not significant	NA
	Other sources	Not significant	NA
Direct emissions and indirect emissions			2,454.234

SGS has been contracted by Universal Microelectronics Co., Ltd. (hereinafter referred to as "Universal Microelectronics"), No. 3, 27th Rd., Taichung Industrial Park. Taichung, Taiwan. R.O.C. for the verification of direct and indirect Greenhouse Gas emissions in accordance with

ISO 14064-3:2019

as provided by UMEC VIETNAM COMPANY LIMITED. (hereinafter referred to as "UMEC VIETNAM"), Lot B(B1), Quang Chau Industrial Park, Quang Chau Ward, Viet Yen Town, Bac Giang Province, Vietnam, in the GHG Statement in the form of GHG report.

Roles and responsibilities

- The management of UMEC VIETNAM 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 GHG emissions information and the reported GHG emissions.
- The verification was based on the verification scope, objectives and criteria as agreed between Universal Microelectronics and SGS on 01 Feb. 2024.
- Verification Criteria: ISO 14064-1:2018
- Verification Period: 04 Sep. 2024 to 24 Sep. 2024.

Scope

- GHG information for the following period was verified: 01 January 2023 to 31 December 2023
- Location/boundary of the activities:
  - Lot B(B1), Quang Chau Industrial Park, Quang Chau Ward, Viet Yen Town, Bac Giang Province, Vietnam
- Types of GHGs included: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3
- The IPCC 2021 AR6 GWP values are applied in this inventory.
- Emission factor:
  - Direct emissions: Greenhouse Gas Emission Factor Table (6.0.4)
  - Indirect emissions:
    - Electricity emission factor is 0.6766 tCO_2e/MWh (Announced by the Ministry of Natural Resources and Environment of Vietnam in 2024).
    - The secondary database has Carbon Footprint Information Platform, Simparo 9.4/Ecoinvent 3.8, 2023 UK Government GHG Conversion Factors for Company Reporting, 2021 UK Government GHG Conversion Factors for Company Reporting.

- The level of assurance agreed is limited assurance.
- Materiality：5%
- The version of inventory sheet: 20240924
- The version of GHG statement: 20240924
- Intended user of the verification opinion: Private

Objective

The purposes of this verification exercise are, by review of objective evidence, to independently review:

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

Conclusion

SGS's approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions information and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the organization's reported GHG emissions. We planned and performed our work to obtain the information, explanations and evidence that the GHG emissions are free from material misstatement.

- The greenhouse gas emissions is 2,454.234 metric tonnes of CO_2 equivalent
- The emissions from the combustion of biomass is 0.0000 metric tonnes of CO_2 equivalent

The emission of each category is described as below: Unit: tonnes of CO_2e

Reporting Boundaries			GHG Emissions
Inventory categories		**Description**	
Direct emissions		Direct emissions from stationary combustion	3.8960
		Direct emissions from mobile combustion	0.9530
		Direct process emissions and removals from industrial processes	0.0001
		Direct fugitive emissions arise from the release of GHGs in anthropogenic systems	123.9088
		Direct emissions and removals from land use, land use change and forestry	0.0000
Indirect emissions	Imported energy	Indirect emissions from imported energy including electricity	1,850.4976
	Transportation	Not significant	NA
	Products used by an organization	Indirect emissions from goods and service purchased including upstream of gasoline, diesel, electricity and tap water, and waste transportation, drain water treatment and waste treatment	474.9790
	Associated with the use of products from the organization	Not significant	NA
	Other sources	Not significant	NA
Direct emissions and indirect emissions			2,454.234

- The opinion of SGS is modified in accordance with the following described circumstances.
  - The verifier has sufficient and appropriate evidence to support the material emissions, removals, or storage.
  - The verifier applies appropriate criteria for the material emissions, removals, or storage.
  - When the verifier intends to rely on relevant controls, the effectiveness of those controls has been assessed.
  - The verifier, applying the ISO 14064-1:2018 standard, presents the following findings. After adjustments and corrections, no material errors were identified.
    - The collection and quantification of activity data for some emission sources should be calculated according to actual situation, such as septic tanks and welding operations.
    - The emission factors should be appropriately referenced according to the characteristic of facility, such as forklifts.
- Retention Limitation: NA

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 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.

This opinion shall be interpreted with the GHG statement of UMEC VIETNAM as a whole.

Verifier Group

Above opinions coincide with auditing process with fairness and impartiality and aim at the emission of year 2023 of clients.

Lead Verifier: Rex lee

Verifier: kyle Tang. Chih Yuan Kuo