

# Independent Assurance Opinion

Verification Opinion No.:  
C602357-2022-AG-TWN-DNV

Issued date:  
16 June, 2023

Page 1 of 2

This is to verify initiate reporting of Greenhouse Gas Inventory Management Report (2022) of

## Zyxel Communications Corporation

### Scope of Verification

DNV Business Assurance (DNV) has been commissioned by Zyxel Communications Corporation ('the Organization') to perform a verification of the greenhouse gas statements of Greenhouse Gas Inventory Management Report (2022) (hereafter the "Inventory Report") in Taiwan, ROC with respect to the sites listed in Appendix A.

The Reporting Boundary for the verification including direct GHG emissions and removals, indirect GHG emissions from imported energy, indirect GHG emissions from transportation, indirect GHG emissions from products used by the Organization and indirect GHG emissions associated with the use of products from the Organization. The further descriptions for the Reporting Boundary listed in Appendix B.

### Verification Criteria and GHG Programme

The verification was performed on the basis of ISO 14064-1:2018 as well as criteria given to provide for consistent GHG emission identification, calculation, monitoring and reporting.

The verification was conducted in accordance with ISO 14066:2011, ISO 14065:2020, ISO14064-3:2019.

### Verification Opinion

It is DNV's opinion that the Inventory Report (2022), which was published on March, 2023, is free from material discrepancies in accordance with the verification criteria identified as stated above. The opinion is decided based on the following approaches,

- For the Direct (Category 1) and Indirect GHG emissions from imported energy (Category 2), the reliability of the information within the Inventory Report (2022) were verified with reasonable level of assurance.
- For the other indirect GHG emissions, the involved information was tested using agreed-upon procedures, AUP, defined in Inventory Report.

Also, the GHG information as stated in Appendix B and C has been verified during the process.

Carlos, Yan De Lin  
GHG Verifier



Place and date:

**Taipei, 16 June, 2023**

For the issuing office:

**DNV Business Assurance Co., Ltd.**  
**29Fl., No. 293, Sec. 2, Wenhua Rd.,**  
**Banqiao District, New Taipei City 220,**  
**Taiwan**



Management Representative

## Supplement to Verification Opinion

### Process and Methodology

The reviews of the Inventory Report and relevant documents, and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

### Quantification of Greenhouse Gas Emission

The Inventory Report covering the period 1<sup>st</sup> January, 2022 to 31<sup>st</sup> December, 2022, it is DNV's opinion that 100% GHG emissions and removals identified within the Reporting Boundary has been included in the Inventory Report as claimed in accordance with the verification criteria identified as stated above, and results in quantification of GHG emissions that are real, transparent and measurable.

### Organizational Boundary of Verification

Financial Management Control  Operational Management Control  Equity Share

### GHGs Verified

CO<sub>2</sub>  CH<sub>4</sub>  N<sub>2</sub>O  HFCs  PFCs  SF<sub>6</sub>  NF<sub>3</sub>

The Quantification of GHG emissions and removals in Direct and Indirect Emission Source:

Category	Direct and indirect GHG emissions categorization*	Emissions and removals verified, tonnes CO <sub>2</sub> -e
1	Direct emissions and removals**	79.2234
2	Indirect GHG emissions from imported energy	483.6520
<i>Total greenhouse gas emissions and removals in Category 1 &amp; 2</i>		562.8754
3	Indirect GHG emissions from transportation	24.6472
4	Indirect GHG emissions from products used by the Organization	119.9870
5	Indirect GHG emissions associated with the use of products from the Organization	-
<i>Total greenhouse gas emissions and removals in Category 3,4 &amp; 5</i>		144.6342

\*: Unless other indicated, the Indirect Emissions was calculated based on 2021 electricity emission factor of 0.509 kg CO<sub>2</sub>-e/kwh, which was announced by Bureau of Energy, Ministry of Economic Affairs. The Global Warming Potential (GWP) defined in IPCC AR6 (2023) has been choose and correctly referred by the Organization.

\*\* : the details subcategory of each category could be refer later in the Report.

### Verification Opinion

unmodified  
 modified  
 adverse

Appendix A to Verification Opinion No. C602357-2022-AG-TWN-DNV

## APPENDIX A

The greenhouse gas statements of Zyxel Communications Corporation Greenhouse Gas Inventory Management Report (2022) with respect to the following sites:

Site	Address
Zyxel Communications plant	No. 2, Industry East Rd. 1x, Hsinchu Science Park, Hsinchu 30075, Taiwan (R.O.C.)
Zyxel Communications (mitrastar plant)	3F, 4F, No. 6, Chuangxin 2nd Rd., Hsinchu Science Park, Hsinchu County 30076, Taiwan (R.O.C.)
Zyxel Communications Taichung office	4F-8, No. 213, Chaofu Road, Taichung City (R.O.C.)
Zyxel Communications warehouse	1F, No. 25, Yanfa 2nd Rd., East Dist., Hsinchu City 30076, Taiwan (R.O.C.)
	4F, No. 2, Kebei 6th Road, Zhunan Township, Miaoli County (R.O.C.)

## APPENDIX B

The Reporting Boundary of Zyxel Communications Corporation Greenhouse Gas Inventory Management Report (2022)

Category	Reporting Boundary
Direct GHG emissions and removals	Mainly from fuel consumption, HFCs emission, other GHG sources or sinks inside organizational boundaries and that are owned or controlled by the organization
Indirect GHG emissions from imported energy	The amount of greenhouse gas emissions produced by the input of electricity and energy.
Indirect GHG emissions from transportation	<ul style="list-style-type: none"> <li>- Transportation of selected purchased goods (100% by weight, Excluded Exhibit, RMA, Sample).</li> <li>- Transportation of employees for business-related activities.</li> </ul>
Indirect GHG emissions from products used by the Organization	<ul style="list-style-type: none"> <li>- Upstream (cradle-to-gate) emissions of selected purchased goods (Including Electricity, Water, Motor Gasoline, Diesel Oil).</li> <li>- Disposal or treatment of waste and waste transportation.</li> </ul>

The scope of other indirect emissions (other than Imported Energy with specified/limited list of sources) was defined by Zyxel Communications Corporation's own pre-determined criteria for significance of indirect emissions, considering the intended use of the GHG inventory.

## APPENDIX C

For direct emissions and removals, quantified separately for each GHG as below, in tonnes of CO<sub>2</sub>-e:

CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	NF <sub>3</sub>	TOTAL
5.0876	38.7990	0.1256	35.2112	-	-	-	79.2234
6.42%	48.97%	0.16%	44.45%	0.00%	0.00%	0.00%	100.000%