

# Environmental Compliance Audit

## DATA CENTER AIR QUALITY AND THERMAL METRICS

Report Date: **25.05.2026** Report ID: **135096** Report Version: **3.2**

Testing Organization: **Technology Care GmbH**

Object: **Sample Data Center**

Measurement Count: **2718** Data Collection Date: **22.05.2026**



Sensor Instrument: **EnviroScanner**

**Scope:** Rack inlets were scanned using a high-resolution, multi-parameter air quality and infrared surface scanning system — a proprietary system manufactured by Technology Care LLC in Zürich, Switzerland. Unlike fixed sensors, this system captures far more detail, as each report includes thousands of measurements taken from thousands of positions.






7 metrics measured 7 within recommended range 0 flagged for review

Measured Value	Recommended	Information
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### TEMPERATURE METRICS

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**Air Temperature:**  
 22.83°C 18 - 27 °C ASHRAE recommends maintaining rack inlet temperatures between 18°C and 27°C (64°F to 80°F).
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**Surface Infrared Temperature:**  
 20.04°C 18 - 27 °C ASHRAE recommends maintaining rack inlet temperatures between 18°C and 27°C (64°F to 80°F).

### AIR QUALITY AND GAS METRICS

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**Air Particles:**  
 1.00 ug/m3 < 15 ug/m3 For data centers, ASHRAE recommends a limit for fine particles of 15 ug/m3, corresponding to the ISO 14644-1 Class 8 standard.
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**Air Humidity:**  
 46.1 %rh 40 - 55 %rh Mean relative humidity. An optimal level for a server room is 40 - 55 %rh. Excess moisture can corrode hardware and cause component failure; humidity that is too low leaves equipment susceptible to electrostatic discharge (ESD) that can damage sensitive components.
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**NOx:**  
 91 ppb ≤ 125 ppb NOx is a corrosive gas primarily emitted from combustion sources such as vehicles and industrial processes. A result below 125 ppb indicates compliance with the ASHRAE recommendation for ANSI/ISA-71.04 Level G1 (Mild).
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**Total VOC:**  
 61 ppb < 500 ppb LEED (Leadership in Energy and Environmental Design) sets a maximum threshold for Total Volatile Organic Compounds (TVOCs) at 500 ppb, widely adopted for data centers and other mission-critical environments. Off-gassing of overheated electronic components can significantly elevate these levels beyond the recommended limit.
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**CO2:**  
 513 ppm < 1000 ppm CO2 concentration is a key metric for assessing indoor air exchange efficiency. Insufficient ventilation results in elevated CO2 levels, reduced oxygen availability, and increased occupant fatigue and infection risk. ASHRAE recommends maintaining levels below 1000 ppm.

Standards referenced: ASHRAE Thermal Guidelines for Data Processing Environments (2021); ISO 14644-1 (Cleanrooms - air cleanliness by particle concentration); ANSI/ISA-71.04 (environmental conditions for process measurement and control systems); LEED v4 (TVOC threshold). Confirm the applicable edition at time of testing.