

# GROUND TESTING

Electrical Engineering Services



## BENEFITS

### Stabilize System Voltages

Your data center's grounding system is considered one of the most important systems for protecting your people and equipment. According to the Information Technology Industry Council, grounding is the most important factor in reliable network equipment performance. Without a proper ground path, electrical noise on data cables can lead to decreased throughput and efficiency of your network.

Proper grounding reduces issues from electrical surges and transient voltages which are often caused by lightning, fault currents, circuit switching, and electrostatic discharge.

Periodic inspection and testing by the expert technicians of Vertiv™ ensures the long-term integrity of your grounding system by identifying potential problems such as loosened or corroded connections, missing labels, and damaged conductors. Early detection of grounding system issues is critical for safeguarding your operations and overall business.

### Benefits

- Ensure network efficiency and throughput
- Improve worker safety
- Improve protection for mission-critical equipment
- Ensure proper operation of protective devices
- Achieve compliance with safety requirements



### Protect your people and equipment from transient voltages

Grounding of electrical equipment enables business continuity and establishes a reference to control electrical noise that can interfere with the proper operation of data center equipment.

Vertiv's ground testing services are performed by NETA-certified technicians who adhere to all applicable industry standards including the Telecommunications Industry Association's Telecommunications Infrastructure Standard for Data Centers (ANSI/TIA-942), as well as standards outlined by the Institute of Electrical and Electronics Engineers (IEEE), National Fire Protection Association (NFPA), and Information Technology Industry Council (ITIC).

While adhering to the strictest standards in safety and electrical testing, our technicians thoroughly inspect ground connections and test grounding electrodes with the goal of ensuring efficient system performance.

Our ground testing services include:

- Visual and mechanical inspection
- Connections check
- Point-to-point testing
- Comprehensive report

## Visual and Mechanical Inspection

Ground testing services from Vertiv™ are performed according to the Recommended Practice for Powering and Grounding Electronic Equipment (IEEE Emerald Book). These services determine if your data center's grounding system is able to provide proper operating conditions for critical equipment and personnel safety. This is accomplished, in part, by inspection of the system's physical and mechanical condition.

Inspection may uncover easy-to-resolve grounding issues. Our technicians also perform this inspection in compliance with Article 250 of the National Electrical Code (NEC), which covers general grounding and bonding requirements. Our knowledge of industry standards and expertise in electrical testing help you adhere to this complex, often misinterpreted article.

## Connections Check

A data center's grounding system may not do its job if there are loose connections. The first step in verifying a grounding system's integrity is inspection of the main bonding connection to ensure electrical continuity of all metallic parts in the circuit.

Vertiv technicians will also verify the tightness of all bolted electrical connections that are accessible. This verification is performed via a calibrated torque-wrench method that is in accordance with manufacturer's published data or NEC Table 100.12.

Connections to system anchorage are also checked to ensure proper bonding and system stability.

## Point-to-Point Testing

Vertiv performs point-to-point testing to determine the resistance between the main grounding system and all major electrical equipment frames, system neutral, and/or derived neutral points.

Technicians follow IEEE testing methods such as the fall-of-potential method used for smaller systems that have a required earth resistance of greater than one ohm.

## Comprehensive Report

Findings from the data center ground testing are summarized in a final report. This report also includes any recommendations for repair or infrastructure changes.

## Summary

Grounding of electrical equipment protects your personnel and equipment from over-voltages, faults, and lightning by providing a solid reference to earth. It also helps control electrical noise that can interfere with proper operation of your data center's equipment.

Periodic testing to verify grounding system integrity is essential. Adhering to the strictest standards in electrical testing, our NETA-certified technicians will help you identify and correct grounding system issues, giving you confidence that your electrical infrastructure is safe and reliable.

## Ordering Information

To learn more about this service and other Vertiv solutions, please visit [VertivCo.com](http://VertivCo.com) or call 1-800-543-2378.