



NEBS Information and Requirements

Frontier Wholesale
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Overview

A properly and fully completed Frontier Network Equipment-Buildings System (NEBS) Conformance Check List is required from each Edge Colocation applicant for each equipment unit to be installed (physical or virtual). Duplicate Check Lists are not required for multiple installations (multiple units in one site, or multiple sites); however, a new Check List is required if any deployment configurations or characteristics change. The Check List shall indicate the number of CO sites affected. Upon receipt of a Check List for equipment not previously analyzed in detail, Frontier will require the Customer to request its supplier to provide the required supporting test data/results. Once an equipment unit is analyzed and determined to be acceptable, it will be removed from this list, and a formal report will be prepared. Once determined to be acceptable, no further Check Lists will be required, unless the supplier introduces new hardware options, or significantly redesigns the previously analyzed equipment. Frontier Maintenance Engineering will be the sole judge of new or significantly redesigned, installed, equipment.

Requirements

To provide reliable, high quality services and features, Frontier must deploy and use equipment and systems that deliver dependable, reliable, and safe performance during normally encountered operating conditions.

NEBS standards can be categorized into three "levels" as follows.

- Level 1:
 - A low threshold of equipment hazards and network degradation. Addresses safety and personnel requirements of GR-63-CORE and GR-1089-CORE. Operation requirements are not enforced at this level.
- Level 2:
 - Addresses equipment operability within controlled environments such as labs and data centers, areas expected to be free of environmental stress. This vague description has led to this being the least used of the levels of certification.
- Level 3:
 - Signifies that the equipment meets all of the GR-63-CORE and GR-1089-CORE requirements. This level has strict requirements for fire suppression, thermal testing, vibration resistance such as earthquakes, acoustic limits, failure severity, emissions, and testing certification.



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The NEBS requirements are a set of generic equipment requirements published by Telcordia Technologies that define the minimum goals for equipment operating characteristics (GR-63-CORE, currently Issue 1; GR-1089-CORE: Telcordia GR – 1089 [formerly Bellcore]) sets the criteria for wireline and wireless EMC applications. GR-1089 is used to ensure telecommunications equipment contains the Electromagnetic Compatibility (EMC) and electrical safety criteria necessary to perform safely and reliably.

GR – 1089 contains NEBS criteria that cover equipment in Central Offices (COs); equipment in the Outside Plant (OSP) at locations such as Controlled Environmental Vaults (CEVs), Electronic Equipment Enclosures (EEEs), and huts; equipment in uncontrolled structures such as cabinets; and network equipment at the customer premises. These requirements are intended to ensure the safety and reliability of equipment and services provided by Frontier. Conforming equipment should neither affect nearby equipment, nor be affected by nearby equipment. Additionally, GR78-CORE (currently Issue 1) describes various design and manufacturing techniques that will help ensure system reliability --e.g., connector surface type, shape, size; metallization type and thickness; printed wiring board spacing, insertion force; avoidance of 'mixed metals' for mating surfaces. The primary difference, between the "NEBS requirements" and commercial (UL, CSA) or international (FCC, IEC, EN, ETSI, CSPR) requirements, is overall equipment reliability.

- NEBS addresses performance, operation, reliability, safety, and specifies pass/fail criteria.
- UL and CSA address safety and limited safety related operational factors.
- FCC addresses operational factors limited to interference to other electronic equipment, and limits measurements only to 1 GHz.
- EN, ETSI address performance, operation, and safety, but use test limits that are lower than NEBS, and do not adequately address reliability.
- IEC defines criteria in several performance levels but does not specify pass/fail levels.

The NEBS requirements specifically address equipment intended for use in telecommunications applications; they are intended to ensure safe, reliable equipment, which is also immune to spurious interference from other equipment. Current commercial requirements primarily address safety. Various international requirements (e.g., ETSI, EN, IEC) address spurious radiation, with some degree of immunity to interference. NEBS requirements address a wider spectrum of conformance. It is required that the equipment functions normally during the tests. Other test requirements are either vague on this issue or permit operational verification to be made after the tests are completed.



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