



NEBS Information and Requirements

Frontier Communications
Rochester, NY

Jurisdiction:
Effective Date: 5/10/2011

Background

A properly and fully completed Frontier NEBS Conformance Check List is required from each Collocation applicant for each equipment unit to be Collocated (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 Collocator 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.

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. The NEBS requirements (Network Equipment-Buildings System) 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, currently Issue 2). 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, GR-78-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.

NEBS requirements define flammability resistance, flame spread, and speed of self extinguishing; operating temperature and humidity limits; heat release; floor loading; vibration (earthquake) resistance; power and grounding; electrostatic discharge (ESD) immunity; and electromagnetic compatibility (EMC) --radiated and conducted emissions and immunity. These criteria reduce fire and safety risks, improve equipment reliability, and allow pieces of equipment to coexist in the CO building without interfering with each other. The criteria also help ensure that equipment will withstand the normal stresses expected to be experienced during shipping, handling, storage, and installation.

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