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What is NEBS?

- NEBS stands for "Network Equipment-Building System"
- NEBS describes the environment of a typical Regional Bell Operating Company (RBOC) Central Office (CO). This description includes spatial and environmental criteria. Typical equipment line-ups are described including the environment they're exposed to.
- NEBS was developed by Bell Labs back in the 1970s to standardize equipment that would eventually be installed in a CO. The intent was to make it easier for a vendor to design equipment compatible with a typical RBOC CO. This would result in lower development costs and ease the equipment's introduction into the network.

What is the main document that makes up NEBS?

- The main Bellcore document is **GR-63-CORE**, *Network Equipment-Building System (NEBS) Requirements: Physical Protection*
- This document identifies the minimum spatial and environmental criteria used for new telecommunications equipment to be used in an RBOC's CO.
- **The spatial criteria covers:**
 - cable distribution systems
 - distributing and interconnecting frames
 - power equipment
 - operations support systems
 - cable entrance facilities
- **The environmental criteria covers:**
 - temperature & humidity
 - fire resistance
 - equipment handling
 - earthquake
 - office vibration & transportation vibration
 - airborne contaminants

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- acoustic noise
- illumination

Are there other documents that relate to NEBS?

- Yes. There are other documents that relate to NEBS. A very important sister document is **GR-1089-CORE**, *Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment*. Together with **GR-63-CORE**, these 2 documents make up what's known as the "NEBS Criteria".
- **GR-1089-CORE** details Electromagnetic Compatibility (EMC) and Safety requirements, including:
 - Electrostatic Discharge (ESD)
 - Electromagnetic Interference (EMI)
 - Radiated Emissions - (Electric Fields)
 - Radiated Emissions - (Magnetic Fields)
 - Conducted Emission (AC Power Leads - Voltage)
 - Conducted Emission (AC and DC Power and Signal Leads - Current)
 - Conducted Emission (Analog Voiceband Leads)
 - Lightning and AC Power Fault
 - Steady-State Power Induction
 - DC Potential Difference
 - Electrical Safety
 - Corrosion
 - Bonding and Grounding
 - Another important document is **GR-78-CORE**.
 - This document consists of manufacturing and product design guidelines.



What is "NEBS Level 3"?

- **"NEBS Level 3"** is a term from Bellcore special report, SR-3580. This report details 3 distinct functional levels of NEBS compliance based on GR-63-CORE and GR-1089-CORE. The levels allow a wide range of NEBS requirements to be applied to equipment based on application and network impact.
- **"NEBS Level 1"** means that people and equipment hazards and network degradation are minimized. NEBS Level 1 addresses the personnel and equipment safety requirements of GR-63-CORE and GR-1089-CORE. This is useful for getting prototypes into a lab trial. It's also a requirement that is imposed on Competitive Local Exchange Carriers (CLECs) in order for them to deploy equipment into an RBOC's network. This level doesn't address operability, this is addressed in Levels 2 and 3.
- **"NEBS Level 2"** addresses equipment operability, but in a controlled environment. For example, equipment could be used in a data center, however, if the equipment performs non-critical operations it could be used under environmental extremes. Note that this level is very rarely used because it is ambiguous.
- **"NEBS Level 3"** means the equipment is in the network for the long haul. We're talking about Carrier Class with this stringent level. The equipment will operate under the environmental extremes found in a central office. In a nutshell, the equipment meets all of the requirements of GR-63-CORE and GR-1089-CORE.
 - *NOTES:*
Verizon does not follow SR-3580. They use their own NEBS checklist, SIT.NEBS.TE.NPI.2000.004, that details what they believe are important to their network's integrity.

SBC uses 2 levels as detailed in their NEBS checklist TP76200MP.

Do the RBOCs have requirements over and above NEBS?

Verizon, Bell South, Qwest, and SBC all have requirements over and above NEBS. (See the applicable corporate websites for individual NEBS criteria)



Helpful Web Sites:

www.lorusso.com

www.nebs-faq.com

www.verizonnebs.com

The Verizon NEBS web site provides current information about Verizon's NEBS Compliance programs.

www.metlabs.com

MET performs the required NEBS testing and Nationally Recognized Testing Laboratory (NRTL) certification at fully equipped facilities. MET's two complete NEBS facilities are located in Baltimore, Maryland and Union City, California. MET is designated by Verizon to be an Independent Test Laboratory for NEBS Certification.

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