

# Verizon NEBS Requirements

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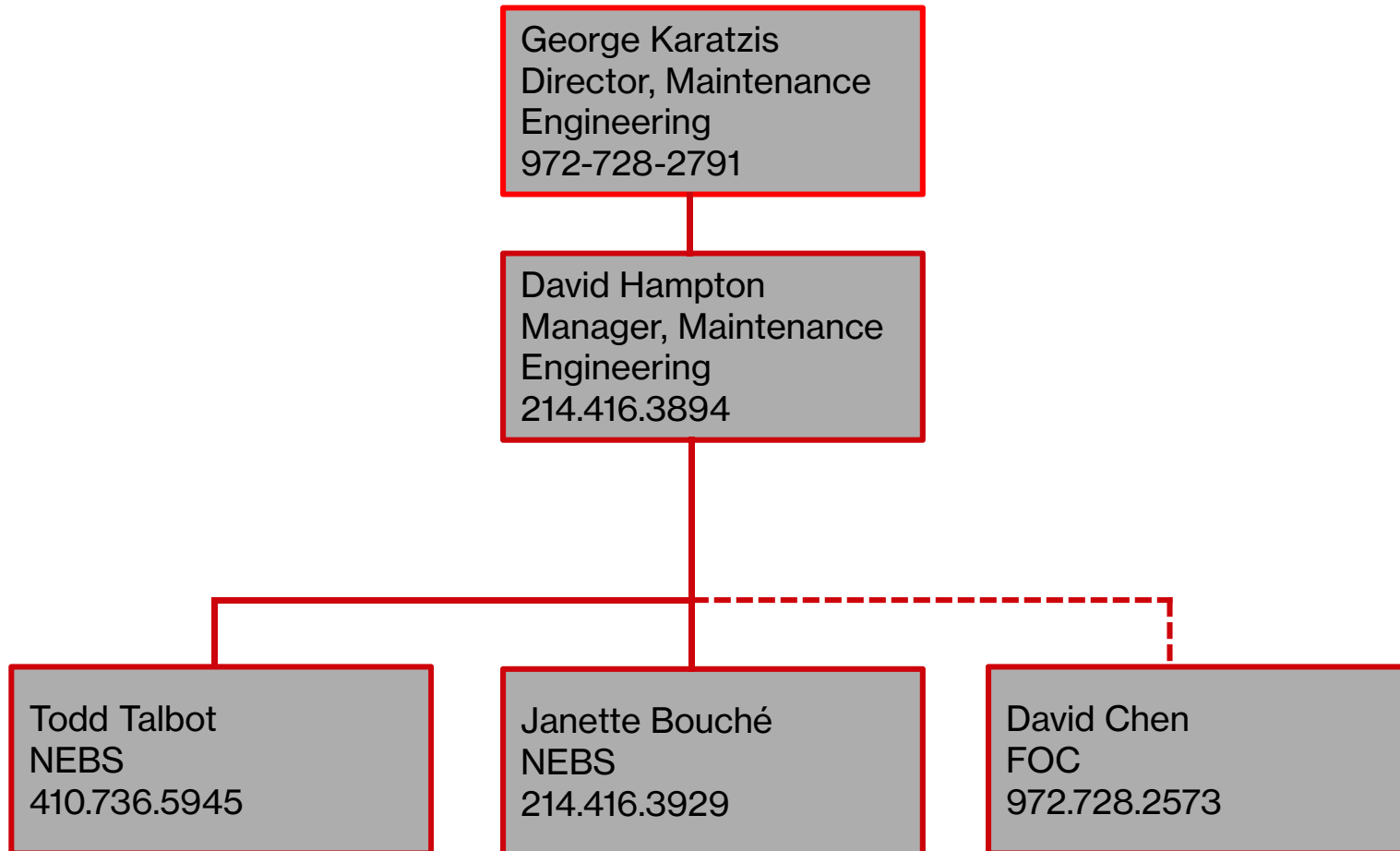
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# NEBS Role

NEBS requirements are designed to:

- Ensure equipment is safe, reliable, and performs as intended
- Streamline equipment design and installation
- Prevent service outages and interference in a network caused by incompatible equipment
- Reduce the risks of fires in network facilities
- Limit failures that occur in the field
- Support equipment compatibility with the network's electrical environment

# NEBS / FOC Group



# Verizon NEBS Web Page

<http://www.verizonnebs.com>

Energy Efficiency ITL Program Technical Updates TCG VZ TPRs Test Library

**verizon** Contact us NEBS Home

**Welcome to the Verizon NEBS™ Compliance Web Page**

Verizon recognizes the inherent value of providing uninterrupted telecommunications services that exceed our customers' expectations. Whether it's dial tone to residential customers, high-speed data solutions to enterprise partners, or interactive gaming and video content via FiOS TV, we are transforming the network to deliver on promises made to our stakeholders.

Virtually limitless bandwidth, high speed transmission, and "five 9s" reliability can only be attained by deploying cutting edge technology and employing knowledgeable professionals who are passionate about creating a legacy of success.

Verizon is committed to being the service provider of choice to consumers who want content rich services at competitive prices. The Verizon NEBS Compliance web site provides current information about Verizon's NEBS programs. Check back often to make certain you have the latest data.

[David Hampton - Manager, Corporate Technology](#)

[Click here to see previous NEBS Conferences](#)

- ✓ VERIZON SYSTEMS INTEGRATION & TESTING
- ✓ GREEN TECHNOLOGY - VERIZON IMPOSES NEW ENERGY REQUIREMENTS ON GEAR SUPPLIERS
- ✓ VERIZON GOES GREEN
- ✓ CONTACT THE NEBS TEAM
- ✓ VERIZON FOUNDATION
- ✓ VERIZON NEWS CENTER



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# ITL Program

## NEBS Testing Certification Program (TCP)

- 9 Independent Laboratories
- 23 Separate Locations

## NEBS Testing Certification Witnessing Program (TCWP)

- 4 Independent Laboratories

## Fiber Optic Component (FOC) Program

- 2 Independent Laboratories

# VZ.TPR.9305 NEBS Clarification Document

Provides clarification to Verizon's interpretation of NEBS requirements

Details guidance on testing and reporting

Covers GR-63-CORE, GR-1089-CORE, GR-487-CORE, GR-3108-CORE and FOC Testing

## Examples

- Flame testing guidance and clarifications
- Acceptance of temperature compensation method for altitude
- Externally mounted ferrites not acceptable
- AC power fault testing to continue at 600 Vrms

# VZ.TPR.9203 Requirements by Location

NEBS Doc.	CODE	VzT CO NEBS 3	VzT CO / CLEC NEBS 1	Data Centers	SHE / VHO	SIT Lab Entry	Customer Premises
GR-63	S	2.0 Spatial					
	R	4.1.1 Transportation &					
	R	4.1.2 Operating Temp & Relative Humidity					4.1.2 Operating Temp & Relative Humidity
	R	4.1.3 Altitude					4.1.3 Altitude
	R	4.1.4 Hi-Temp Margin					
	R	4.1.5 Fan Cooling					
	R	4.1.6 Heat Dissipation	4.1.6 Heat Dissipation				
	S	4.1.7 Surface Temp	4.1.7 Surface Temperature				4.1.7 Surface Temp
	R	4.1.8 Equipment Airflow					
	S	4.2 Fire Resistance	4.2 Fire Resistance	4.2 Fire Resistance <sup>1</sup>	4.2 Fire Resistance <sup>1</sup>	4.2 Fire Resistance	4.2 Fire Resistance
	R	4.3 Eqmt Handling					
	S	4.4.1 Earthquake					
	S	4.4.2 Framework and Anchor					
	S	4.4.3 Wall-Mounted Anchors					
	R	4.4.4 Office Vibration					
	R	4.4.5 Transportation Vibration					
	R	4.5 Airborne Contaminants					
S	4.6 Acoustic Noise						
R	4.7 Illumination						
GR-1089	R	2 ESD/IEFT Immunity					
	S	3.2 EMI Emission	3.2 EMI Emission	3.2 EMI Emission	3.2 EMI Emission	3.2 EMI Emissions	* FCC Emissions (CFR Title 47, Part 15)
	R	3.3 EMI Immunity					3.3 EMI Immunity
	R	4 Lightning and AC Power Fault (1st Level)					
	S	4 Lightning and AC Power Fault (2nd Level)	4 Lightning and AC Power Fault (2nd Level)	4 Lightning and AC Power Fault (2nd Level)	4 Lightning and AC Power Fault (2nd Level)		4 Lightning and AC Power Fault
	R	5 Steady State Power					
	R	6 DC Potential					
	S	7 Electrical Safety	7 Electrical Safety	7 Electrical Safety	7 Electrical Safety	7 Electrical Safety	7 Electrical Safety
	R	8 Corrosion					
	S	9 Bonding and Grounding	9 Bonding and Grounding	9 Bonding and Grounding	9 Bonding and Grounding	9 Bonding and Grounding	
R	10 DC Power Ports						
VZ.TPR.9205 TEEER		As Applicable	As Applicable	As Applicable	As Applicable	As Applicable	As Applicable



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# VZ.TPR.9205 Energy Efficiency

Applies to all equipment used in the Verizon footprint (CO, MSO, Data Center, VHO, OSP and CPE)

Provides benchmarks/formulas for individual types of equipment

- Uses existing industry standards where available (i.e. ATIS)
- Created benchmarks where none existed

Testing performed at a VZ-approved ITL

EUT to be configured as a typical installation for Verizon

All system functions or features that increase power consumption must be enabled

Enable any internal energy saving features





## VZ.TPR.9211 Power and Grounding

Required for equipment to be deployed in VZ Wireline facilities

Provides data related to power fusing and operation.

Allows installation personnel to safely create, provision and maintain network-servicing equipment

Responses allow VZ to protect from over-current and to correctly size batteries, power cables and rectifier plants

To be included with NEBS test reports provided to VZ

## VZ.TPR.9307 Lead-Free

Equipment supplied to Verizon after July 1, 2010 shall meet this TPR

Applicable to equipment in both controlled and uncontrolled environments

Covering all components, assemblies and PBAs containing lead-free solder alloys

Perpetual Product Conformance

- Identical Design Rules
- Similar BOM
- No changes to manufacturing process
- Or Manufacturing location

# Reporting Expectations

## Full NEBS reports

- All requirements and objectives addressed
- Explanations for all not applicable testing
  - Not requested by vendor raises red flags

## Completed TCG Checklist

- Filled out by vendor
- GR-78-CORE self declaration

## Videos

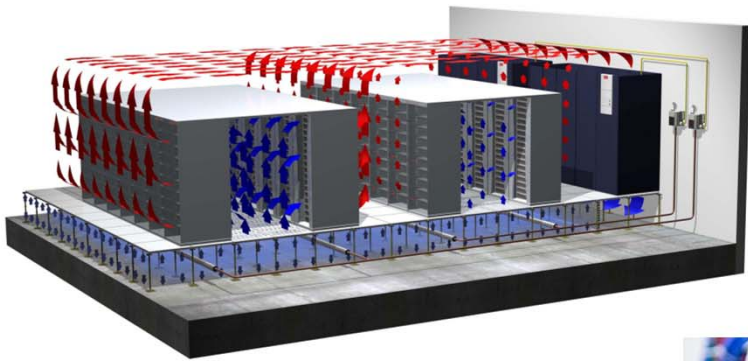
- Seismic and Flame Spread

## VZ.TPR.9211 or VzW NERF Document

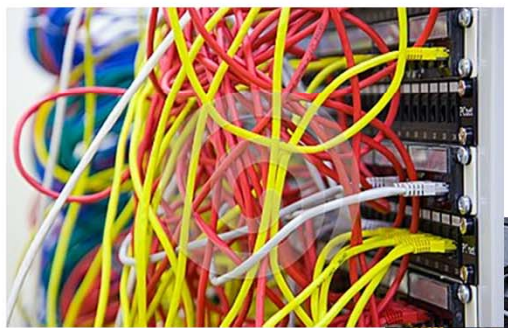
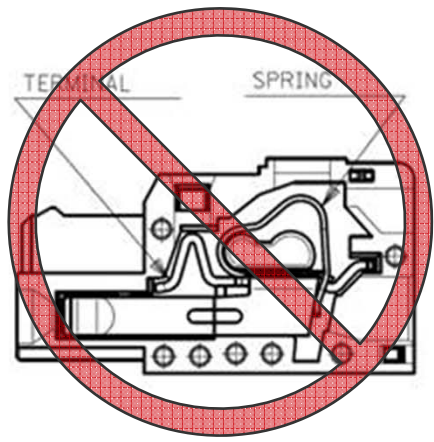
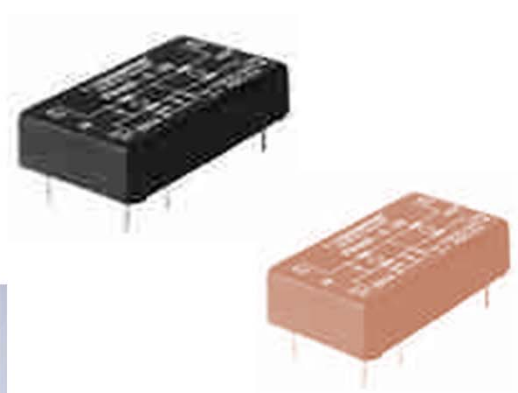
## VZ.TPR.9205 Energy Efficiency Reports

## VZ.TPR.9307 Pb-Free if applicable

# Hot Topics



DC



## In Closing

NEBS continues to be a key element in ensuring reliability and performance

Equipment compliance provides immeasurable return to service providers

Proper documentation is key

Verizon will continue to evaluate NEBS requirements and applicability across the network

NEBS updates will continue to be provided through the NEBS web page [www.verizonnebs.com](http://www.verizonnebs.com)



**Thank you.**