

NECA • BICSI SUMMIT 2023

Non-Compliant and Counterfeit Cable

How smart infrastructure can become
dangerously dumb

David B. Kiddoo

Communications Cable & Connectivity Association

1

CCCA – Who We Are

- Non-profit association addressing quality & performance, safety, environmental impact and other key issues regarding communications infrastructure.
- Members include leading manufacturers of cable and connectivity products, distributors and material suppliers.

Accu-Tech

alphagary

ANIXER

AVIENT

BELDEN
SENDING ALL THE RIGHT SIGNALS

Berk-Tek | a LEVITON
company

CABLE
COMPONENTS
GROUP

Chemours

comCables
STRUCTURED CABLING

COMMSCOPE

DAIKIN

DOW

General Cable

GraybaR

legrand

LEVITON

OCC
OPTICAL CABLE CORPORATION

Proterial Cable America, Inc.

Prysmian
Group

UABBIN
WIRE & CABLE CO., INC.

REELEX
PACKAGING SOLUTIONS, INC.

SENTINEL
Connector Systems Inc.

SUPERIOR
ESSEX

WESCO

Westlake
Global Compounds

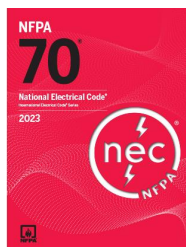
WONDERFUL

2

Communications Cable & Connectivity Association

- **Goal:** All network / limited energy cable products sold ***comply*** with applicable fire safety codes, transmission standards ... **and the law!**
- **Mission:** Education

Codes and Standards Intensive Industry



“Listed”

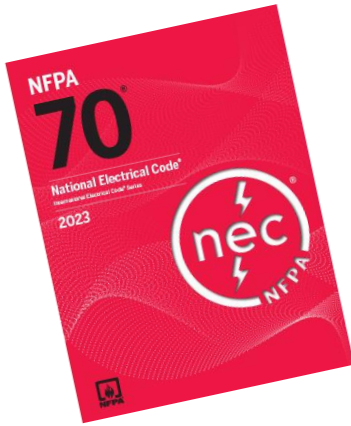
Life Safety
Mandatory



“Verified”

Transmission
Voluntary

National Electrical Code Requirements



800.179 Communications Wires and Cables

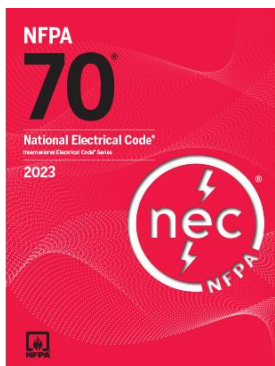
“Communications wires and cables **shall be listed** in accordance with 800.179(A) through (I) and marked in accordance with Table 800.179. **Conductors in communications cables, other than in a coaxial cable, shall be copper.**”

CMP - Communications Plenum

CMR - Communications Riser

CM - Communications General Purpose

Safety Listing



“Equipment, materials, or services included in a list published by an organization that is **acceptable to the authority having jurisdiction ...**”



Nationally Recognized Testing Laboratories (NRTLs)

The Reality Is...

- People want a “bargain”
- There are unscrupulous manufacturers out there
- Making Code and Standard compliant product is expensive
- It’s “easy” to fake compliance
- Not everyone knows the signs of non-compliant product

Market Surveillance

Examining Compliance of:

1. Communications Data / PoE Cables
2. Copper Patch Cords
3. Fiber Optic Jumpers
4. Fiber Optic Assemblies



What we've found:

Packaging and/or cable showing *unauthorized* listing agency Certification Marks

- Cable Listing Mark is considered **counterfeit**
- Cable may not be code compliant
- May have been listed at one time but no longer compliant

How to tell if marks are counterfeit

Packaging and/or cable shows UL symbol on package or cable but package does not have UL holographic label

- **Every Box** of UL Listed Cable **requires** a Holographic Label
- If no label, cable may be **non-compliant to NEC®**
- Often deceptively advertised and marketed as fully compliant
- Misleading and false claims, e.g.
 - “Plenum rated”
 - “Plenum cable”
 - “Plenum approved”



Another problem:

Packaging and/or cable shows UL or ETL marks, including holographic label (UL) but *does not meet* requirements of codes and standards

- Cable is **non-compliant**
- Not manufactured with materials needed to pass flame spread and smoke generation limits
- May have significant failure in fire performance testing – life safety risk

UL Public Notices

UL warns of communication cable with unauthorized reference to UL

“This cable does not comply with the standard for safety for the United States and Canada, and is not authorized to bear the UL Mark or reference UL.”



UL Public Notices

- There are currently 16+ public notices regarding non-compliant and/or counterfeit communication cable

UL Warns of Potentially Hazardous Communications Cable (Release No. 17PN-13)

(Version française)
(Versión en español)

NORTHBROOK, Ill., Aug. 15, 2017 — The following is a notification from UL that the communications cable identified below may pose a fire hazard. The communications cable does not comply with UL's Standards for Safety and is not authorized to bear the UL Mark.

Name of Product:
Communications Cable, Type CMP

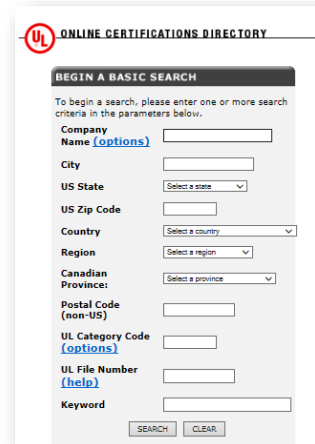
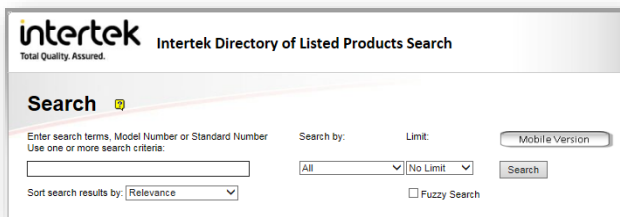
Manufacturer:
Nantong Lianxin Wire & Cable Co. Ltd.

Hazard: The communications cable does not meet the flammability requirements of the safety standard which may cause an increased risk of fire.



Where do I get more information?

- Visit UL or Intertek (ETL) Web sites
- Both sites are searchable for listing information by company name



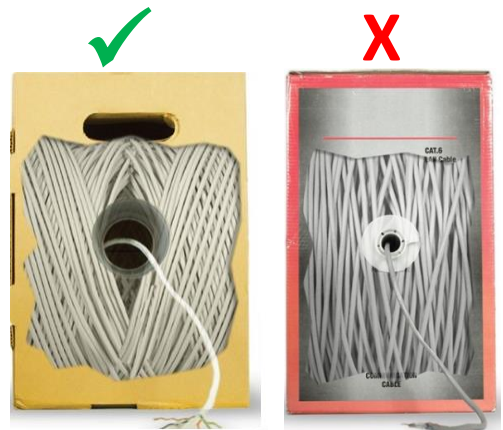
CCCA CableCheck™ App

- For use as a field-screening tool with UL Listed cables
- Type in the “E” file number printed on the cable jacket to look up Listing
- Shows “What to Watch Out For”
- Links to the Cable Fire Test Video
- Available from the App Store and Google Play

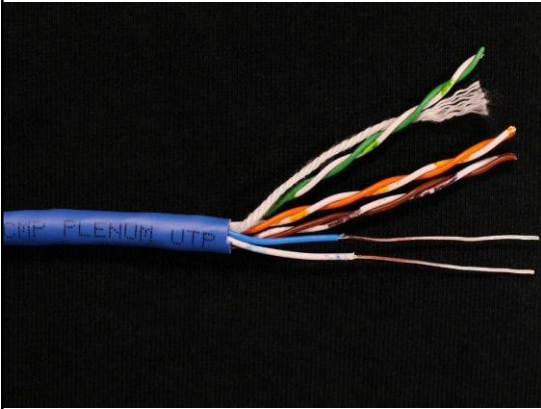


Other Clues Regarding Non-Compliant Cable

- Poor cable design and/or quality control
- Poor packaging and problems with cable payout – imitation of Reelex™ wind



Counterfeit Cable Hiding in Plain Sight



Copper Clad Aluminum (CCA) Conductors

- Not allowed for network / PoE cables
- Would never be Listed by any listing agency
- Many sites selling this cable refer to it as “cost effective”
- Significant fire safety / overheating threat

Powering over LAN Cable



West Baden Springs Hotel PoE Cabling: 500 Lights, 220 Control Nodes

Powering over LAN Cable



CEDIA[®]

19

Powering over LAN Cable

Safety Concerns

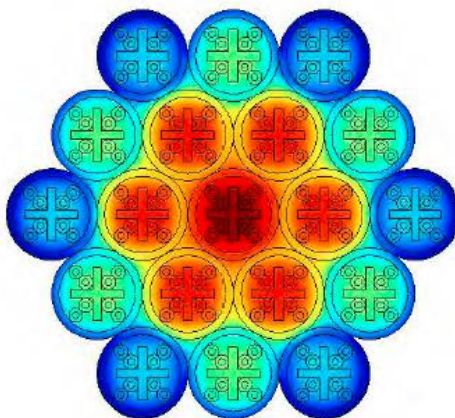
- Power levels have been steadily increasing
- Power levels and power density will continue to increase
- Cables are often installed in bundles
- **Bundles result in a cumulative heating effect**
- Heat is trapped
- Cables (especially at the center of the bundle) can overheat
- Safety and performance can be compromised

NECA • BICSI SUMMIT 2023

20

Cable Heating

21



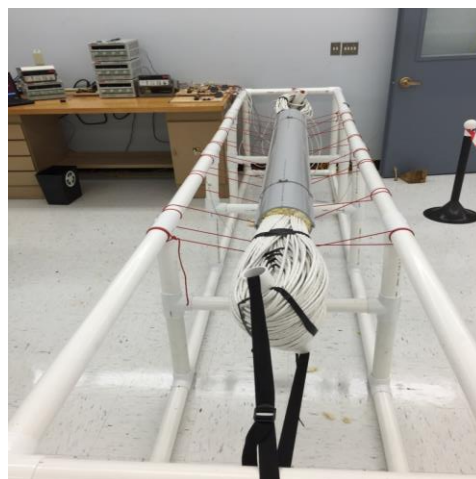
NECA • BICSI SUMMIT 2023

21

UL Fact Finding Study on Cable Heating

22

- Safety factors
 - 192 cable
 - Tightly packed bundle
 - All conductors carrying full rated current
 - In conduit with Insulated ends
 - +20°C offset

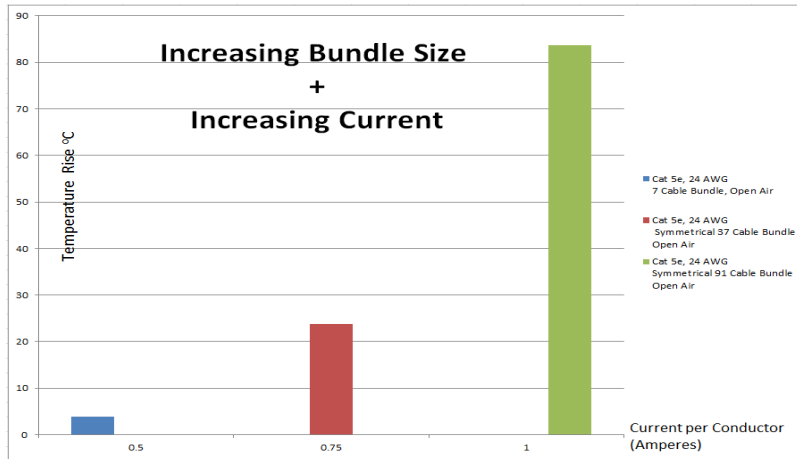


NECA • BICSI SUMMIT 2023

22

UL Fact Finding Study on Cable Heating

Larger Bundles + Higher Currents Produce Excessive Heat



UL Fact Finding Study on Cable Heating

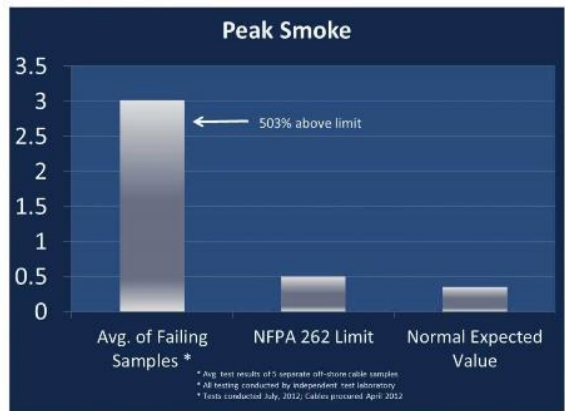
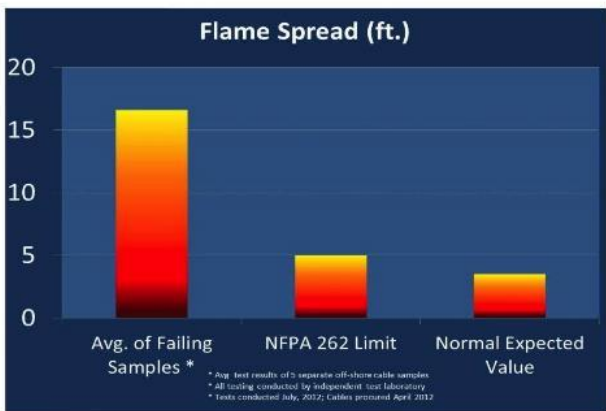
- Data shows that cable heating can be managed via:
 - **Increased AWG size**
 - **Cable Design Variations**
 - **Material Selection (90°C - 105°C+)**
 - **Installation Practices**
 - **Avoid Copper Clad Aluminum Conductors!**

CCCA Market Surveillance and Testing Program

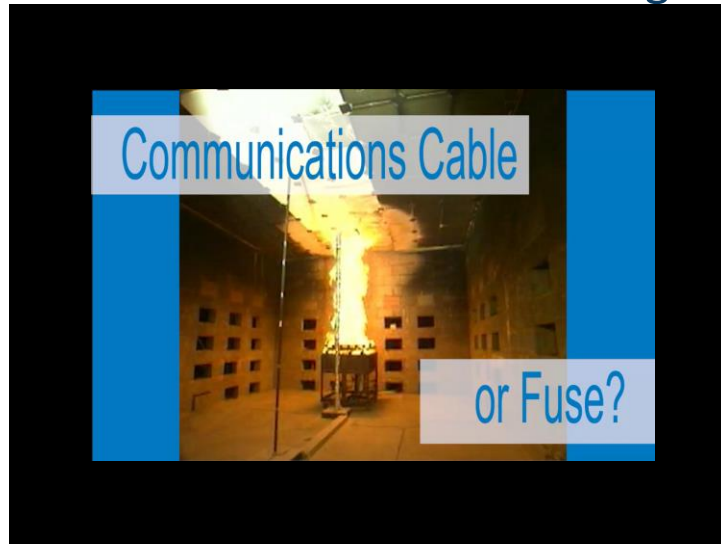
- Samples from Market – CMP Plenum-rated Cables
- Independent / Third Party testing
- NFPA 262 (Steiner Tunnel)
 - Flame Spread
 - Smoke



Initial Round of Tests



The Latest Round of Testing



Liability for Installation of Non-Compliant Cable

- Installers have a legal responsibility (a duty of care) to ensure the products they install are compliant to local building codes
- “..a **duty of care** is a legal obligation which is imposed on an individual requiring adherence to a standard of reasonable care while performing any acts that could foreseeably harm others.”
- Liability exists **whether or not the installer actually knows** (or verifies) the product is non-compliant

Duty of care. (2017, May 15). In *Wikipedia, The Free Encyclopedia*. Retrieved 19:23, November 15, 2017, from https://en.wikipedia.org/w/index.php?title=Duty_of_care&oldid=780551099

Liability for Installation of Non-Compliant Cable

Consequences for the installation of non-compliant cable – building code violations:

- Vary by state but can include fines and/or imprisonment for building code violation. Some states impose fines for each day the code violation exists.
- Certificate of Occupancy may not be issued to building owner/tenant

Liability for Installation of Non-Compliant Cable

Possible Civil Liability

- Negligence – liability for additional damage caused by fire
- Fraud – possibility of additional damages, including punitive damages
- Breach of Contract and Warranty

What CCCA is Doing

- Collaborating with UL on compliance and quality assurance procedures
- Communications, training, education, tools for industry and end-users
- Collaborating with and training global customs and law enforcement to protect member brands and trademarks.
- Ongoing surveillance and testing

Webcasts on www.CCCAssoc.org



Part 1 **How Big is the Problem? – CCCA**

Part 2 **Avoiding Liability – Legal Perspective**

Part 3 **UL Labels and Marks - UL**

Conference Presentations

U.S. and International – large and small



Europol Conference

What You Can Do to Protect Your Company, Your Customers and the Public!

- Long term due diligence is vital.
- Industry media and educational events
- UL and Intertek public notices
- www.CCCAssoc.org
- CableCheck™ app
- Buy known brands
- If unknown brand, require written proof of Listing or verification



What to Look For

- ✓ Recognizable Manufacturer and Factory Location
- ✓ Reputable Vendor
- ✓ Industry Consistent Cost
- ✓ Listing Marks from UL or Intertek and Listing information on their web site
- ✓ Quality packaging and smooth payout

Visit Our Website CCCAssoc.org

The Voice of the **Structured Cabling** Industry

LATEST NEWS

LEARN MORE ABOUT US

HOT TOPICS



Our website is a valuable resource of timely topics in the industry – including white papers, articles, notices, case studies, videos, and more.

**Follow us on LinkedIn,
Facebook, and YouTube**

NECA • BICSI
SUMMIT 2023

Thanks for Listening!

David B. Kiddoo
Executive Director

Communications Cable & Connectivity Association