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*American National Standard for
Aerospace and Industrial Electrical Cable*

Secretariat:

National Electrical Manufacturers Association

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Foreword

This standard was developed by the High Performance Wire and Cable section of NEMA as a non-governmental standard replacement for MIL-DTL-27500 electrical cable, which is widely used in aerospace and other industries.

It contains:

- a) Reference standards (section 1)
- b) Identification methods (section 2) and requirements (Section 3.10)
- c) Construction details (sections 2, 3)
- d) Material requirements (section 2)
- e) Conductors
- f) Primary wire
- g) Shields
- h) Jackets
- i) Electrical requirements (section 3.8)
- j) Physical requirements (section 3.8)
 - 1) Other requirements (sections 3.11-3.14)
- k) Color/size/weight/lengths/markings
- l) Test methods for above requirements (section 4)
- m) Inspection/QC/process control procedures (section 4)
- n) Packaging (section 5)
- o) Notes/cross-reference/other data (section 6)
- p) Ordering data
- q) Qualification and retention of qualification requirements

The requirements contained herein are consensus requirements that have been developed over the past three decades by knowledgeable engineers in the aerospace industry.

Members of the NEMA High Performance Wire and Cable Section that participated in development of the current edition of this standard:

AFC Cable Systems	New Bedford, MA
AmerCable	El Dorado, AR
Belden Inc.	St. Louis, MO
Berk-Tek, a Nexans Company	Elm City, NC
Cable USA LLC.	Naples, FL
Coleman Cable Inc.	Waukegan, IL
General Cable	Highland Heights, KY
Harbour Industries LLC.	Shelburne, VT
IWG High Performance Conductors	Inman, SC
Kaneka North America	Pasadena, TX
Leviton Manufacturing Co., Inc.	Gardena, CA
Quirk Wire Company, Inc.	West Brookfield, MA
Radix Wire Company	Euclid, OH
RSCC Aerospace and Defense	East Granby, CT
Southwire Company	Carrollton, GA
The Monroe Cable Company, Inc.	Middletown, NY
The Okonite Company	Ramsey, NJ
TE Connectivity	Menlo Park, CA

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Section 1 GENERAL

1.1 SCOPE

This standard contains requirements for finished cables. Component wires are covered by other referenced standards. These cables are intended for signal and low-voltage power applications with defined environment or temperature conditions found in commercial aircraft, military aircraft, and high-performance vehicles.

Naval Air Systems Command (NAVAIR) approval is required to manufacture these cables.

1.2 REFERENCED STANDARDS

American National Standards Institute (ANSI)

11 West 42nd Street
New York, NY 10036

American Society for Quality Control (ASQC)

611 East Wisconsin Avenue
Milwaukee, Wisconsin 53202

ANSI/ASQ Z 1.4

Sampling Procedures and Tables for Inspection by Attributes

American Society for Testing and Materials (ASTM)

100 Barr Harbor Drive
West Conshohocken, PA 19428

ASTM A 313/A313M	<i>Standard Specification for Stainless Steel Spring Wire</i>
ASTM B 272	<i>Copper Flat Copper Products with Finished (Rolled or Drawn) Edges (Flat Wire and Strip)</i>
ASTM B 298	<i>Silver-Coated Soft or Annealed Copper Wire</i>
ASTM B 3	<i>Soft or Annealed Copper Wire</i>
ASTM B 33	<i>Standard Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes</i>
ASTM B 355	<i>Nickel-Coated Soft or Annealed Copper Wire</i>
ASTM B 624	<i>Standard Specification for High-strength, High-conductivity Copper Alloy Wire for Electronic Application</i>
ASTM B971	<i>Standard Specification for Silver-Coated Braid and Ribbon Flat Copper Wire Intended for Use in Electronic Application</i>
ASTM B972	<i>Standard Specification for Nickel-Coated Braid and Ribbon Flat Copper Wire Intended for Use in Electronic Application</i>
ASTM B973	<i>Standard Specification for Tin-Coated Braid and Ribbon Flat Copper Wire Intended for Use in Electronic Application</i>
ASTM D 3032	<i>Hookup Wire Insulation, Standard Methods of Testing</i>
ASTM D 4066	<i>Polyamide Injection and Extrusion Materials (PA) Nylon Injection and Extrusion Materials (PA)</i>