



ANSI/TIA-942-C-2024
APPROVED: MAY 7, 2024

TIA STANDARD

Telecommunications Infrastructure Standard for Data Centers

ANSI/TIA-942-C
(Revision of TIA-942-B)

May 2024

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(From Project No. ANSI/TIA-942-C-R3, formulated under the cognizance of the TIA TR-42 Telecommunications Cabling Systems, TR-42.1 Subcommittee on Premises Telecommunications Infrastructure).

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Technology and Standards Department
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FOREWORD

(This foreword is not considered part of this Standard.)

This Standard was developed by TIA Subcommittee TR-42.1.

Approval of this Standard

This Standard was approved by the Telecommunications Industry Association (TIA) Subcommittee TR 42.1, TIA Technical Engineering Committee TR 42, and the American National Standards Institute (ANSI).

ANSI/TIA reviews standards every 5 years. At that time, standards are reaffirmed, revised, or withdrawn according to the submitted updates. Updates to be included in the next revision of this Standard should be sent to the committee chair or to TIA.

Contributing organizations

More than 60 organizations within the telecommunications industry (including manufacturers, consultants, end users, and other organizations) contributed their expertise to the development of this Standard.

Documents superseded

This Standard replaces ANSI/TIA-942-B dated 2017 and its addenda.

This Standard incorporates the content of ANSI/TIA-942-B, Addendum 1, *Edge Data Centers*

Significant technical changes from the previous edition

The major modifications in ANSI/TIA-942-C from ANSI/TIA-942-B include:

- Incorporated ANSI/TIA-942-B-1 Edge Data Centers.
- Added single balanced twisted-pair cable as a recognized type of cable for horizontal cabling.
- Where balanced twisted-pair cabling is used for wireless access points two category 6A or higher performing cabling runs as a minimum requirement.
- Optical fiber connectors may be any TIA-568.3 compliant connector outside the EO. LC and MPO connectors are still the required optical fiber connectors at the EO.
- Added recommendation for a minimum of two optical fibers for horizontal and backbone cabling.
- Updated temperature and humidity guidelines to require the recommended temperature and humidity envelope per ASHRAE TC 9.9 Thermal Guidelines for Data Processing Environments, 5th edition, including addition of new High Density H1 Class.
- Added requirement of a minimum of 800 mm wide cabinets in the MDA, IDA, and HDA.
- Reduced minimum floor loading capacity for computer rooms less than 20 m² (220 ft²) to 5 kPa (100 lbf/ft²).
- Added thermal guidelines from ASHRAE TC 9.9 Technical Bulletin on Edge Computing to the Annex on Micro Edge Data Centers.
- Annex on Coordination of Equipment Plans with Other Engineers converted from informative to normative.
- Annex on Data Center Space Considerations converted from informative to normative.
- Annex on Data Center Site Selection and Building Design Considerations converted from informative to normative.
- Annex on Data Center Infrastructure Rating converted from informative to normative, however any data center rating system may be used.

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- Multiple updates to data center rating tables in Annex D to make them normative if the TIA-942 rating system is used and to reflect current state of data center technology.
- Annex on Edge Data Center Types converted from informative to normative, however any edge data center classification system may be used.
- Added informative annex on Immersion Cooling Considerations.
- Reordered annexes with normative annexes appearing before informative annexes.
- Multiple updates to micro edge data center type tables in Annex F to make them normative if the TIA-942 classification system is used and to reflect current state of data center technology.
- Added recommendations for management of micro edge data center environments to harmonize with ASHRAE TC 9.9.

Relationship to other TIA standards and documents

The following are related standards regarding various aspects of structured cabling that were developed and are maintained by Engineering Committee TIA TR-42. An illustrative diagram of the ANSI/TIA-568 Series relationship to other relevant TIA standards is given in figure 1.

- ANSI/TIA-568.0, *Generic Telecommunications Cabling for Customer Premises*
- ANSI/TIA-568.1, *Commercial Building Telecommunications Infrastructure Standard*
- ANSI/TIA-568-2, *Balanced Twisted-Pair Telecommunications Cabling and Components standard*
- ANSI/TIA-568.3, *Optical Fiber Cabling and Components Standard*
- ANSI/TIA-568.4, *Broadband Coaxial Cabling and Components Standard*
- ANSI/TIA-568.5, *Balanced Single Twisted-Pair Telecommunications Cabling and Components Standard*
- ANSI/TIA-569, *Telecommunications Pathways and Spaces*
- ANSI/TIA-606, *Administration Standard for Telecommunications Infrastructure*
- ANSI/TIA-607, *Telecommunications Bonding and Grounding (Earthing) for Customer Premises*
- ANSI/TIA-758, *Customer-Owned Outside Plant Telecommunications Infrastructure Standard*
- ANSI/TIA-862, *Structured Cabling Infrastructure Standard for Intelligent Building Systems*
- ANSI/TIA-1005 *Telecommunications Infrastructure Standard for Industrial Premises*
- ANSI/TIA-1179, *Healthcare Facility Telecommunications Infrastructure Standard*
- ANSI/TIA-4966, *Telecommunications Infrastructure Standard for Educational Facilities*
- ANSI/TIA-5017, *Telecommunications Physical Network Security Standard*
- ANSI/TIA-5048, *Automated Infrastructure Management (AIM) Systems – Requirements, Data Exchange and Applications*