



**ATIS-0600063.2023**

ATIS Standard on -

**Guidelines for Environmental Testing and Evaluation  
of Communication Equipment**



As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's most pressing business priorities. ATIS' nearly 200 member companies are currently working to address the All-IP transition, 5G, network functions virtualization, big data analytics, cloud services, device solutions, emergency services, M2M, cyber security, network evolution, quality of service, billing support, operations, and much more. These priorities follow a fast-track development lifecycle — from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open source solutions, and interoperability testing.

ATIS is accredited by the American National Standards Institute (ANSI). The organization is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of the oneM2M global initiative, a member of the International Telecommunication Union (ITU), as well as a member of the InterAmerican Telecommunication Commission (CITEL). For more information, visit [www.atis.org](http://www.atis.org).

---

### Notice of Disclaimer & Limitation of Liability

The information provided in this document is directed solely to professionals who have the appropriate degree of experience to understand and interpret its contents in accordance with generally accepted engineering or other professional standards and applicable regulations. No recommendation as to products or vendors is made or should be implied.

NO REPRESENTATION OR WARRANTY IS MADE THAT THE INFORMATION IS TECHNICALLY ACCURATE OR SUFFICIENT OR CONFORMS TO ANY STATUTE, GOVERNMENTAL RULE OR REGULATION, AND FURTHER, NO REPRESENTATION OR WARRANTY IS MADE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. ATIS SHALL NOT BE LIABLE, BEYOND THE AMOUNT OF ANY SUM RECEIVED IN PAYMENT BY ATIS FOR THIS DOCUMENT, AND IN NO EVENT SHALL ATIS BE LIABLE FOR LOST PROFITS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. ATIS EXPRESSLY ADVISES THAT ANY AND ALL USE OF OR RELIANCE UPON THE INFORMATION PROVIDED IN THIS DOCUMENT IS AT THE RISK OF THE USER.

NOTE - The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to whether use of an invention covered by patent rights will be required, and if any such use is required no position is taken regarding the validity of this claim or any patent rights in connection therewith. Please refer to [<https://www.atis.org/policy/patent-assurances/>] to determine if any statement has been filed by a patent holder indicating a willingness to grant a license either without compensation or on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain a license.

---

*Published by*

**Alliance for Telecommunications Industry Solutions  
1200 G Street, NW, Suite 500  
Washington, DC 20005**

Copyright © 2024 by Alliance for Telecommunications Industry Solutions All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher. For information contact ATIS at 202.628.6380. ATIS is online at < <http://www.atis.org> >.

**ATIS-0600063.2023**

[Revision of ATIS-0600063]

ATIS Standard on

# **Guidelines for Environmental Testing and Evaluation of Communication Equipment**

**Alliance for Telecommunications Industry Solutions**

Approved December 7, 2023

## **Abstract**

This guideline is a high-level review of the ATIS test requirements for communication equipment to assist the user in choosing the appropriate ATIS standard and test specifications for equipment and application. The document includes guidelines for choosing test classification for indoor and outdoor environments. This document is limited to physical protection and environmental stresses; other documents might be required for full qualification.

## Foreword

---

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between providers, customers, and manufacturers. The Sustainability in Telecom: Energy and Protection (STEP) Committee – formerly the Network Interface, Power, and Protection (NIPP) Committee – engages industry expertise to develop standards and technical reports for telecommunications equipment and environments in the areas of energy efficiency, environmental impacts, power, and protection. The work products of STEP enable vendors, operators, and their customers to deploy and operate reliable, environmentally sustainable, energy efficient communications technologies. STEP is committed to proactive engagement with national, regional, and international standards development organizations and forums that share its scope of work.

The mandatory requirements are designated by the word shall and recommendations by the word should. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word may denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, STEP, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time it approved this document, STEP, which is responsible for the development of this Standard, had the following leadership:

- E. Gallo, STEP Chair (Ericsson)
- J. Fuller, STEP Vice Chair (AT&T)
- C. Forbes, STEP NPP Chair (National Technical Systems)
- C. Von Hagel, STEP NPP Vice Chair (Intertek)

The Network Physical Protection (NPP) Subcommittee was responsible for the development of this document.

**Table of Contents**

1	Scope, Purpose, & Application.....	1
1.1	Scope .....	1
1.2	Purpose .....	1
1.3	Application.....	1
2	Normative References.....	3
3	Definitions, Acronyms, & Abbreviations .....	4
3.1	Definitions.....	4
3.2	Acronyms & Abbreviations .....	4
4	Test Guidelines.....	5
4.1	Shelf Level Equipment Used Indoors.....	5
4.2	Wall Mount and Standalone Equipment Used Indoors .....	6
4.3	Frame Level Equipment Used Indoors .....	8
4.4	Equipment installed in an Outdoor Enclosure .....	9
4.5	Standalone Outside Plant .....	12

**Table of Figures**

Figure A.1:	Exterior view of Equipment Hut or MTSO .....	14
Figure A.2:	Example of interior of Central Office (or Communications Facility) .....	15
Figure A.3:	Example of Outside Plant Cabinet.....	16
Figure A.4:	Example of Ventilated Outside Plant Cabinet.....	17
Figure A.5:	Example of Small Sealed Outside Plant Cabinet .....	18
Figure A.6:	Example of Controlled Environmental Vault .....	19

**Table of Tables**

Table 4.1 –	Environmental Class 1 Shelf Level Equipment Used Indoors – Physical Protection .....	5
Table 4.2 –	Environmental Class 1 Shelf Level Equipment Used Indoors – Energy Efficiency .....	6
Table 4.3 –	Environmental Class 1, Wall Mount or Standalone Equipment Used Indoors-Physical Protection .....	6
Table 4.4 –	Environmental Class 1, Wall Mount or Standalone Equipment Used Indoors-Energy Efficiency .....	7
Table 4.5 –	Environmental Class 1, Frame Level Equipment Used Indoors-Physical Protection.....	8
Table 4.6 –	Environmental Class 1, Frame Level Equipment Used Indoors – Energy Efficiency.....	8
Table 4.7 –	Environmental Class 2, Equipment Installed in an Outdoor Enclosure in a Harsh Protected Environment-Physical Protection .....	9
Table 4.8 –	Environmental Class 3, Equipment Installed in an Outdoor Enclosure in an Extreme Protected Environment-Physical Protection .....	10
Table 4.9 –	Environmental Class 2, Equipment Installed in an Outdoor Enclosure in a Harsh Protected Environment – Energy Efficiency .....	10
Table 4.10 –	Environmental Class 3, Equipment Installed in an Outdoor Enclosure in an Extreme Protected Environment – Energy Efficiency .....	11
Table 4.9 –	Environmental Class 4, Standalone Outside Plant-Physical Protection .....	12
Table 4.10 –	Environmental Class 4, Standalone Outside Plant-Energy Efficiency .....	13

ATIS Standard on –

# Guidelines for Environmental Testing and Evaluation of Communication Equipment

## 1 Scope, Purpose, & Application

### 1.1 Scope

This guideline is for use as a reference guide for physical and energy efficiency of both indoor and outdoor equipment. The intent of the guideline is to be a reference guide and not for specific testing guidance of the equipment. This guideline is designed to refer the interested parties to applicable test standard(s).

### 1.2 Purpose

The purpose of this guideline is to provide interested parties a roadmap through the suite of ATIS standards. It is meant as a roadmap and the expectation is that the referenced document in each table shall be used to perform the testing. The reference document will contain the actual test parameters, duration, methods, and tolerance to be applied during the testing phase. The information supplied in this guideline alone is not sufficient to perform the testing in accordance with the referenced documents.

Interested parties will utilize the ATIS requirements, referenced throughout the guideline, for designing and providing communications providers and suppliers with industry-compatible equipment. Testing facilities, manufacturers, and end users of the equipment will utilize the guideline for equipment qualification advice and assurance that all qualification and testing requirements were performed and met.

### 1.3 Application

This guideline is broken down into test scenarios dealing with individual qualification of equipment. Each table contains a list of ATIS tests and standards to be followed for each individual test scenario. Various types of communications facilities are referenced in the equipment class descriptions below. Example photographs of some of these facilities are shown in Appendix A.

#### **Environmental Class 1 Equipment (as defined in ATIS-0600010.01 [Ref 6]):**

- **Shelf-Level Equipment Used Indoors** - This table is for guidance for equipment being installed inside a temperature-controlled environment. The equipment is intended to be installed inside Universal Cabinets and Framework (UCF) frames throughout the testing. The controlled temperature environment can include, but is not limited to, Communications Carrier Space, Mobile Telecommunications Switching Offices (MTSOs), Huts, Controlled Environmental Vaults (CEVs), and customer premises locations.
  - Examples of equipment that might be located in these environments include:
    - Circuit cards/line cards installed inside a rack-mountable chassis.
    - Any type of equipment that is designed to be mounted in a frame/rack/UCF and not attached to the floor.
- **Wall Mount or Standalone Equipment Used Indoors** - This table is for guidance for equipment being installed inside a temperature-controlled environment. The controlled temperature environment can include, but is not limited to, Communications Carrier Space, MTSOs, Huts, CEVs, and customer premises locations.
  - Examples of equipment that might be located in these environments include:
    - Inside wall-mounted equipment.
    - Inside table top equipment.