



ATIS-0600015.13.2017 (R2023)

Energy Efficiency for Telecommunication Equipment:  
Methodology for Measurement and Reporting of  
802.11xx Wi-Fi Access Points

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## ATIS-0600015.13.2017 (R2023), *Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting of 802.11ax Wi-Fi Access Points*

Is an American National Standard developed by the **Telecommunications Energy Efficiency (TEE)** Subcommittee under the ATIS **Sustainability in Telecom: Energy and Protection Committee (STEP)**.

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American National Standard for Telecommunications

**Energy Efficiency for Telecommunication Equipment:  
Methodology for Measurement and Reporting of  
802.11xx Wi-Fi Access Points**

Alliance for Telecommunications Industry Solutions

Approved January 2017

**Abstract**

This document specifies the definition of Wi-Fi Access Points based on a network they served, as well as a methodology to calculate the Telecommunication Energy Efficiency Ratio (TEER). The standard will also provide requirements for how equipment vendors shall respond to a TEER request based on a specific application description by making use of relevant data from internal and independent test reports.

## Foreword

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The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

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.

ANSI guidelines specify two categories of requirements: mandatory and recommendation. 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.

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

At the time it approved this document, STEP, which was responsible for its development, had the following roster:

- K. Biholar STEP Chair (Nokia)
- J. Krahnert, STEP Vice Chair (Cisco)
- L. Rabinovich, STEP TEE Chair (Cisco)
- S. Martin, STEP TEE Vice Chair (AT&T)
- L. Rabinovich, Technical Editor (Cisco)

The Telecommunications Energy Efficiency (TEE) Subcommittee was responsible for the development of this document.

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American National Standard for Telecommunications –

# Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting of 802.11xx Wi-Fi Access Points

## 1 Scope, Purpose, & Application

### 1.1 Scope

The requirements and definitions in this document are for Small Networking Equipment (SNE). This document represents one part of the larger ATIS suite of standards concerning Telecommunications Energy Efficiency (TEE).

### 1.2 Purpose

This document provides a set of definitions, requirements, and guidelines for calculating the Telecommunications Energy Efficiency Ratio (TEER) of a Wi-Fi Access Point. This document also provides standardized definitions for operational data rates and test conditions to be used when calculating the TEER of any given configuration. The test methodology used to independently verify the Energy Consumption measurement used as part the TEER calculation is addressed in ATIS-0600015.

### 1.3 Application

This document (and supporting documentation) is intended to be used by network operators, equipment manufacturers, and resellers as a standard method for determining the energy efficiency of Wi-Fi Access Points. By comparing the TEER reports of multiple products that have the same functional capabilities and meet a common set of requirements, a communications network operator, reseller, or end user can select the equipment that best meets their energy efficiency targets.

## 2 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this ATIS Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this ATIS Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

IEEE 802.11, *Wireless LANs*.<sup>1</sup>

ISO 17025, *General Requirements for the competence of testing and calibration laboratories*.<sup>2</sup>

ATIS-0600015.2013, *Methodology for Measurement and Reporting: General Requirements*.<sup>3</sup>

<sup>1</sup> This document is available from the Institute of Electrical and Electronics Engineers (IEEE) 802.11 Working Group at: < <http://www.ieee802.org/11/> >.

<sup>2</sup> This document is available from the International Organization for Standardization at: < <http://www.iso.ch/iso/en/prods-services/ISOstore/store.html> >.