



***Society of Cable
Telecommunications
Engineers***

**ENGINEERING COMMITTEE
Energy Management Subcommittee**

AMERICAN NATIONAL STANDARD

ANSI/SCTE 210 2015

**Performance Metrics for Energy Efficiency &
Functional Density of Cable Data Generation, Storage,
Routing, and Transport Equipment**

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1. Scope

1.1. Introduction

Cable operator networks are large expansive networks that involve hundreds if not thousands of miles of coaxial or fiber cable powered by power supplies in the plant and connecting customers to critical infrastructure facilities such as hubs, headends, data centers, regional and national distribution datacenters. In these facilities is a vast array of equipment responsible for the production and support of the cable products – voice, video and data as well as newer products such as home automation and security, and Wi-Fi to name a few. The importance of powering all of these devices in the critical facilities is ever increasing as the customer expectation of 100% availability of service is growing due to expansion into business services and residential competition from new mark place service providers. The following standard is the first of multiple releases that will provide the cable operator the standard reference to determine how well a piece of rack or shelf equipment performs in terms of minimizing the power required to do its particular job. In addition, this standard will provide the means to quantify the amount of useful work the equipment provides per physical space. This release will focus on the Digital Data Transport critical facility equipment.

1.2. Applicability to Critical Spaces

The energy efficiency and functional density metrics proposed in this document apply to Critical Spaces used by cable operators. Critical Spaces are defined in Section 5.2.

1.3. Objective

The SCTE responded to the cable industry's requirement articulating energy efficiency and service feature functional density requirements. As a body, the objective of this standard is to solve the problem of gauging – in a standard methodology – the density of hardware to meet the needs of optimizing critical space, as well as gauging energy consumption for the various network element classes.

1.4. Hardware Service Feature Density Metrics

This standard seeks to define a method to calibrate product density. Initial thoughts include service features per Rack Unit or "RU", per ft³, per m³, or equivalent.

1.5. Energy Consumption Metrics

This standard seeks to define a method to calibrate energy consumption based on service features such as watts/QAM channel, Watts/optical channel, or similar for cable headend, hub, and cable subscriber access equipment.

Datacenter, server, router, network termination, and long-haul transport equipment metrics may either be adapted to SCTE requirements, or adopted from existing industry standards, for example ATIS (Alliance for Telecommunications Industry Solutions) datacenter, server, and router standards.

1.6. Applicable Equipment

Cable operators require that the energy efficiency and functional density metrics apply to ALL indoor equipment used in Critical Spaces. These include the following equipment categories: