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Interface Practices Subcommittee

SCTE STANDARD

SCTE 292 2024

**Broadband Component QR Code Technical
Requirements**

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Document Tags

☒ Specification	☐ Checklist	☒ Facility
☐ Test or Measurement	☐ Metric	☒ Access Network
☐ Architecture or Framework	☐ Cloud	☐ Customer Premises
☐ Procedure, Process or Method		

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Note: Standards that are released multiple times in the same year use: a, b, c, etc. to indicate normative balloted updates and/or r1, r2, r3, etc. to indicate editorial changes to a released document after the year.

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1. Introduction

1.1. Executive Summary

The purpose of this document is to provide the cable operator ecosystem with the necessary information to deliver standardized information about Network components and modules for use by cable operators. This document focuses on providing direction on two key mechanisms for the delivery of standardized information: 1) the development of consistent and useful physical labels that include serialization and QR codes and 2) the development and delivery of detailed component manufacturing information as part of advanced shipping notices.

1.2. Scope

As cable operators look to implement one of the largest upgrades in their respective Network's history, an opportunity exists to improve and standardize Network component asset management for operators across the industry. Existing Network components are currently delivered and installed throughout the Network with no uniform serialization or unique naming characteristics applied across every type of component (e.g., Media Access Control (MAC) address does not apply to all Network components).

The cable industry has moved towards alignment and standardization with tagging and serializing Network components. Label content, quick response (QR) code format, embedded information, and delivered information in this requirement document are based on a set of industry-aligned principles.

All components, subcomponents, and functional modules that are a part of the broadband Network (listed in Table 1) require a physical label, QR code, and unique Broadband Equipment Identity (BEID). The components and their related subcomponents that are in-scope are: Virtual Hub (housing, EDFA, diplexer, combiner, and splitter), ROLT (housing, EPON module, uplink module, power module), small form-factor pluggable, Node (housing, remote switch module, RPD module, RF amplifier module, power module, power hold-up module, optical switch module, OLT on a stick, adapter plate module, analog forward receiver, analog return transmitter, and digital return transmitter), Amplifier (housing, RF amplifier module, and power module), Line Extender (housing, LE module, and power module), Standby Power Supply, Tap, Splitter, Directional Coupler, Splitter, and Power Insertter.

Cable operators and their field technicians will use mobile application(s) to scan the QR code on the physical label and the captured information will be used for automated inventory systems, provisioning systems, and lifecycle management systems.

Table 1: Components, Subcomponents, and Functional Modules

Component	Subcomponent / Functional Modules
Virtual Hub	housing ²
	EDFA
	diplexer
	combiner
	splitter
ROLT	housing
	EPON module
	uplink module
	power module
SFP	SFP
Node	housing ²

Component	Subcomponent / Functional Modules
	remote switch module
	R-PHY device (RPD) module
	RF amplifier module
	power module
	power hold-up module
	optical switch module
	OLT on a stick
	adapter plate module
	analog forward receiver
	analog return transmitter
	digital return transmitter
Amplifier	housing ²
	RF amplifier module
	power module
Line Extender	housing ²
	line extender (LE) module
	power module
StandBy Power Supply ¹	standBy power supply
Tap ¹	faceplate
Directional Coupler ¹	faceplate
Splitter ¹	faceplate
Power Inserter ¹	faceplate
1. Includes all iterations and types of associated components.	
2. Physical Label/QR code must be affixed to the backplate of the housing.	

1.3. Benefits

Today, there is no standardized identifier across vendors or components for uniquely identifying each piece/unit of equipment manufactured and deployed within the Broadband Network. While serial numbers are unique within a vendor, there is no standard format across vendors to ensure uniqueness. This specification, in conjunction with the cable industry, has created an industry standard for a 15-digit alphanumeric Broadband Equipment Identity (BEID) that is a unique identity for every unit of in-scope components that is manufactured. It will be human readable on any physical label and will be the aggregated content of vendor code, device type code, manufacture year code, and an additional 7-digit alphanumeric component ID that each vendor creates.

These requirements aim to drive standardization and reduce burden on the operator ecosystem and will result in uniformity, consistency, and a reduction of time needed to accommodate otherwise varying requirements from each cable operator.

1.4. Intended Audience

The intended audience for this document is manufacturers, (sub)component vendors, field technicians, engineers, and operational teams requiring the information for automated inventory systems, provisioning systems, and lifecycle management system purposes.

1.5. Areas for Further Investigation or to be Added in Future Versions

Improvement of these requirements is expected periodically to incorporate feedback after widespread deployment of these labels in the Network. Improvements based on data-driven field experience will further adoption and efficiency of these consistent, useful labels across the industry.

2. Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this document. The editions indicated were valid at the time of subcommittee approval. All documents are subject to revision and, while parties to any agreement based on this document are encouraged to investigate the possibility of applying the most recent editions of the documents listed below, they are reminded that newer editions of those documents might not be compatible with the referenced version.

2.1. SCTE References

No normative references are applicable.

2.2. Standards from Other Organizations

[ASTM G 154]	ASTM G 154: Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Materials
[CSA C22.2 No. 0.15]	CSA C22.2 No. 0.15: Adhesive labels
[GR-2873]	GR-2873: Generic Requirements for Coaxial Drop Passive Elements
[IEC 15416]	IEC 15416:2016 Automatic identification and data capture techniques — Bar code print quality test specification — Linear symbols
[IEC 15426-1]	IEC 15426-1:2006 Information technology — Automatic identification and data capture techniques — Bar code verifier conformance specification — Part 1: Linear symbols
[ISO 15415]	ISO 15415: 2011 Information technology — Automatic identification and data capture techniques — Bar code symbol print quality test specification — Two-dimensional symbols
[ISO/IEC18004]	ISO/IEC18004: 2015 Information technology — Automatic identification and data capture techniques — QR Code bar code symbology specification
[UL 969]	UL 969: Labeling Requirements and Standards
[UL 62368-1]	UL 62368-1, Clause F.3.10.3: Audio/video, information and communication technology equipment - Part 1: Safety requirements

2.3. Other Published Materials

No normative references are applicable.

3. Informative References

The following documents might provide valuable information to the reader but are not required when complying with this document.

3.1. SCTE References

No informative references are applicable.

3.2. Standards from Other Organizations

No informative references are applicable.

3.3. Other Published Materials

No informative references are applicable.