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Telecommunications
Engineers***

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**SCTE Test Procedures for Testing CWDM Systems in
Cable Telecommunications Access Networks**

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1. Introduction

1.1. Scope

This document describes procedures to support the measurement and characterization of the system optical (loss) performance through the passive points and segments of a Coarse Wavelength Division Multiplexing (CWDM) based Multi-point Optical Access Network (CWDM-MOAN) fiber cable plant. The procedures contained herein are designed to be used in conjunction with the relevant industry test procedures for testing outside plant optical systems.

The term “optical fiber cable plant”, may consist of optical fiber cables, connectors, mounting panels, jumper cables, and other passive components, but may not include active components. For example, the cable plant can be a portion of a commercial services FTTX network, including optical switches or couplers, but would exclude gain elements in the optical path.

1.2. Benefits

Current industry standard optical fiber plant test methods are intended for point-to-point optical links, and are not optimized for point-to-multi-point CWDM systems with remote outside plant wavelength-specific filter devices. When used in conjunction with other relevant industry standardized test procedures, this document provides preferred measurement principles and practices to support valid and comprehensive evaluation of a CWDM-MOAN with remote outside plant CWDM filters in a point-to-multipoint configuration, which is critical to accurate testing and characterization of such systems.

This document does not cover all aspects of system testing and qualification and is not intended for the following purposes:

- Component testing or point to point links between elements of an optical system which can be accomplished via standard single-mode system testing. This includes systems with remote WDM filters co-located with end-electronics.
- Active components performance and qualification.
- Point-to-multipoint lengths with in-line optical power splitters
- Designing, specifying, ordering, installing, or maintaining CWDM-MOAN.
- CWDM-MOAN passive product specifications and qualifications.
- Detailed test equipment operation, including referencing procedures

2. Normative References

The following documents contain provisions, which, through reference in this text, constitute provisions of this document. At the time of Subcommittee approval, the editions indicated were valid. 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

- ANSI/TIA/-526-7 (February 2002) - OFSTP-7 - Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant (2003)

2.3. Published Materials

- No normative references are applicable.

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4. Abbreviations and Definitions

4.1. Abbreviations

DeMUX	De-multiplexer
COM	common port
EXP	express port
MUX	Multiplexer

4.2. Definitions

Multiplexer	Device used to combine two or more wavelengths over a single fiber.
De-Multiplexer	Device used to separate two or more wavelengths previously combined onto a single fiber to filtered wavelengths.
WDM Device	A means of increasing information carrying capacity by operating at multiple wavelengths over a single fiber.
Terminal	Optical enclosure that incorporates an optical connector to provide access at discrete locations in an optical network.