Application Note AN-3005
National Fire Protection Association (NFPA) Requirements for Optical Cables in Transit Applications

Optical cables are being deployed with increasing frequency as part of communication networks that support transit and rail systems. These networks support both the operation of the rail system and as well as clients utilizing the rail service for transportation. Safety concerns are of the highest priority and a variety of considerations must be evaluated. Fire prevention, especially in confined areas such as underground tunnels and subterranean platforms/stations, must be addressed to protect the general public form harm.

In general, the applicable portions of the National Electrical Code (NFPA 70) would set the appropriate fire protection requirements and flame-retardant characteristics for any equipment installed in areas occupied by the public. For optical cables, both flame-retardant properties and low smoke generation characteristics would be desirable attributes when placement in confined areas is required. For flame retardance, the associated performance will be identified as General Purpose, Riser, or Plenum and depend upon the certified test protocol the cable met when evaluated. Certification standards are published by accredited organizations such as Underwriters Laboratories (UL) to characterize and certify acceptable performance. These standards of performance are identical to requirements of commercial and residential structures today that must meet established local Building Codes.

Due to the additional complications created by both confined area and higher occupied density of available space, additional safety requirements are applied to Mass Transit and Passenger Rail systems. The hazards created by ignition of combustible materials involve both heat generation and creation of toxic/corrosive vapors. These conditions create increased risk to both people and equipment integrity. NFPA 130 addresses those challenges specific to transit and rail applications and should always be considered for cable installations that include tunnels, underground platforms and stations, or both.

Optical Cable certification to the applicable requirements of both NFPA 70 and NFPA 130 requirements are highly recommended for Transit Applications. AFL strives to produce and supply world class cables for our customers. AFL cables meeting NFPA 130 provides an increased protective functionality to the public and improves the overall safety of the system at large.

[1] NFPA 70: National Electrical Code®

[2] NFPA 130: Standard for Fixed Quideway Transit and Passenger Rail Systems