

## Product & Burn Test Requirements

**HCM electronic cable products** fall into two major groups, appliance wiring material and wiring materials where the use is defined by the National Electric Code (NEC).

Appliance Wiring Materials (AWM)

UL subject 758 (CSA AWM CAN/CSA C22.2 no. 210.2-M90) AWM products are intended for use with equipment that will receive a system or equipment level UL (or CSA) listing. Wire constructions are documented by UL "styles" or CSA "types". UL style listings are required in the United States. CSA type listings are required for products delivered to Canada.

### AWM SUB-CLASSES AND BURN TESTS

Agency	Sub-class/Use location	Burn Test Requirement
UL 758	Internal wiring	UL 1581 (Sec. 1100) - Horizontal burn
UL 758	External interconnect wiring	UL 1581 VW-1 (Sec. 1080)
UL 758	External interconnect	UL 1581 (Sec. 1061)
CSA	Class 1 - Internal wiring A - where not subject to mechanical abuse B - where may be subject to mechanical abuse B1 - Wet location B2 - Oil exposure	FT-1
CSA	Class 2 - External wiring - (Same sub-sets A, B, B1, B2)	At least one of the following: FT-1, FT-4 or FT-6 (Plenum Flame Test)

### NEC ARTICLE 800 COMMUNICATION CABLE

Types	Description/Use Location	Burn Test Requirement
CM	Locations other than Riser or Plenum spaces	UL 1581 Vertical Tray
CMG	Locations other than Riser or Plenum spaces	FT4*
CMR	Riser vertical shafts between floors	UL 1666 Riser burn*
CMP	Plenum spaces, air feeds or returns	UL 910 Steiner tunnel

\* or higher rating

### NEC ARTICLE 725 REMOTE CONTROL, SIGNALING, AND POWER LIMITED CIRCUITS

Types	Description/Use Location	Burn Test Requirement
CL2	Class II circuit, locations other than Riser or Plenum	UL 1581 Vertical Tray
CL2R	Class II circuit, riser vertical shafts between floors	UL 1666 Riser Burn
CL2P	Class II circuit, plenum spaces, air feeds or returns	UL 910 Steiner Tunnel
CL3	Class III circuit, locations other than Riser or Plenum	UL 1581 Vertical Tray
CL3R	Class III circuit, riser vertical shafts between floors	UL 1666 Riser Burn
CL3P	Class III circuit, plenum spaces, air feeds or returns	UL 910 Steiner Tunnel
PLTC	Class III circuit, power limited tray cable, 300 volts	UL 1581 Vertical Tray
TC	Class I* circuit, tray cable, power & lighting, 600 volts	UL 1581 Vertical Tray

\*Per NEC 340 requirements

Burn Test	Description	Requirement
UL 1581 Horizontal Burn	UL 1581 (Sec. 1100) 10" sample mounted horizontal over cotton batting - flame temp > 1500F, flame applied for 30 seconds.	Material burn rate < 1 inch/minute. No ignition of cotton batting
UL 1581 VW-1 CSA FT-1	UL 1581 (Sec. 1080) CSA 22.2 No. 3 (Sec. 4.11.1) Vertical Wire Flame test, Vertical sample 19.5" long over a mat of cotton, 5 cycles: 15 second flame on, 15 second flame off, flag marker 9.5"	Self extinguishing < 60 seconds. No ignition of cotton. Marker flag damage <25%.
UL 1581 Vertical Tray	UL 1581 (Sec. 1160) cable mounted to 8' ladder style vertical tray, flame applied horizontally 18" from bottom for 20 minutes.	Cable damage < 8 feet.
UL 1581 Cable Flame	UL 1581 (Sec. 1061) 3 cycles of flame on for 60 seconds. 30 seconds between flame on cycles.	Self extinguishing < 60 seconds. No ignition of cotton. Marker flag damage <25%.
FT-4	Vertical flame test - cables in cable tray (C22.2 No. 3, clause	Char Length < 1.5 meter.
UL 1666	Riser test - 12' vertically supported cable - "chimney effect" air flow -	Flame height not to exceed 12 feet. Max perr
UL 910	NFPA 262 - 1985 Horizontal burn & smoke evaluation (same test	Flame spread <5 feet, Smoke density < 0.5

Note: Burn tests starting with UL VW-1 are listed in order of increasing severity.