HTI Martin Technical Research Survey of 89 network owners and network contactors study on network failure.

- 98% of Network Contractors experienced fiber failures during the installation process
- 92% of Network Contractors use Isopropyl Alcohol (IPA) as a cleaning agent
- 30% of Network Contractors use compressed air for cleaning

Truck Roll Back Expense Stats:

- “The average truck roll is ~ $150 NOT including labor. Labor $50/hour. The average PRISM truck roll results in a three hour visit.” Matt Olson, Principal Architect at CenturyLink at CONF 2014
- National Association of Regulatory Utility Commissioners estimates a truck roll costs upwards of $275 in 2014 and that does not take into consideration the cost of parts.

80% of a network installation expense is labor.
Doing the job right the first time reduces costs & frustration
BEST PRACTICE: INSPECT → CLEAN → RE INSPECT

- Recommended process from iNEMI IPC 8497-1 & IEC 61300-3-35
- **Never** assume a new cable assembly or transceiver is clean
- No cleaning process is 100% every time and inspecting the end face is important
CRITICAL FACTORS FOR MATING MT FERRULES

- Fiber protrusion and end face geometry
- Shape & tolerance of guide pins
- Tolerance of the fiber and guide pin hole

Fiber protrusion varies between 1 µm to 3 µm

It only takes a minuscule dust particle in the right place to wreak havoc
Contact Friction:
- Connector slider
- Retention clips in adapters and transceivers
- Guide pins

Wear debris is a common source for causing dust particulates
Environmental Sources of Dust Contamination

- Dead skin, hair, and clothing lint
- Foam based swabs and paper based wipes
- Zinc whiskers from electroplated surfaces
- Paper & cardboard packaging materials
- Protective end caps for connectors and adapters
- Airborne based pollen, molds, concrete dust

Dust contamination is inevitable and the most common end face contaminate
Most structured cabling applications have low humidity and susceptible to triboelectric charging
CASSETTES FOR CLEANING MT END FACES

- Cassettes are good for cleaning end faces in production environment
- Uses micro woven, ultrasonically cut cleaning ribbon
- Capable of dry or wet-dry cleaning
CLICKER FOR CLEANING MT END FACES

- Clickers are good for cleaning end faces during network installations
- Cleans both in adapter (male MT) and cable assemblies (female MT)
- Uses micro woven, ultrasonically cut cleaning ribbon and self aligning

**Best Practice for Wet-Dry:**
- Apply small amount of cleaning fluid to an optical grade wipe
- Touch the cleaning tip of the clicker on the wet spot on the wipe
- Do NOT apply the cleaning fluid directly to the cleaning ribbon
STICKS FOR CLEANING IN ADAPTER MT END FACES

- Sticks are good for cleaning end faces that have difficult to remove contamination
- Stick and fluid eliminates electrostatic charge
- Always wipe the end face single direction going along the parallel array
CUTTING CORNERS WITH KNOCK OFF PRODUCTS

- Clickers and cassettes cleaning performance is 100% dependent on all of the components working together as a mechanical system.
- The knock off manufacturers reduce production costs by using lower quality components, expanding the tolerances on the components, and eliminating quality control steps.

**Telltales of Knock Off Products**
- No Brand name
- No manufacturer
- No country of origin
- Generic packaging
CAVEAT EMPTOR ON KNOCK OFF PRODUCTS

When YOU make the decision to purchase knock off products, You exposed your company to:

- Using products that will have no support when quality instances happens
- Jeopardized relationships and lost of trust with legitimate suppliers
- Potential legal action for violating product patents
- Lower profits (if you are a distributor reselling the knock off products or end user having to clean end faces multiple times)

Assuming 80%+ of an installation cost is labor, a high quality product gets the job done right the first time and lowers your OPEX.
Thank you for your time.

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