

Cable & ODU Making Procedure for Lab G

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- Debur DDK connectors
 - PPE items:
 - Safety glasses
 - Nitrile gloves
 - Required tools:
 - Motorized reamer on stand, Rio Grande tools
 - Reamer bit (Dremel bit 9909)
 - Large clothes pins
 - Old connector with 1” fibers sticking out the back (for cleaning)
 - Procedure
 - Hold ferrule to be reamed with the large clothes pin. Put slight pressure on the clothes pin so the ferrule is held securely.
 - Push rotating reamer bit into the ferrule holes with slight pressure for about 1 second. Ream all 8 ferrule holes.

- Push connector with 1” long fibers sticking out the back through ferrule to push out debris.
- Clean area with a broom and brush at the end of the work day to get rid of the dust from the reaming

- Engraving DDK connector clips, only for ODU
 - PPE items:
 - Safety glasses
 - Nitrile gloves
 - Required tools:
 - Engraver, Electronic Marker Ideal Industries Inc.
 - Procedure
 - Check with log book for starting serial number
 - Engrave clips in pairs, marking each individual clip with an "A" side or a "B" side. (example 115A, 115B [1 pair])

- Cut fibers to appropriate length
 - Required items
 - Paper cutter
 - Procedure
 - Almost all fibers have been precut to the correct length by Kuraray.
 - If necessary use paper cutter to trim fibers so the length of fibers is correct

- Building ODUUs, (not Cables)
 - PPE items:
 - None required
 - Required tools:
 - DDK ferrules with Silver Dot, Don't use Silver Bar
 - DDK clips
 - Scissors
 - Blue Tape, (3M 8902 2 mil Polyester Composite Bonding Tape)
 - Tape dispenser
 - Procedure
 - Record connectors serial numbers in log book along with the date.
 - Insert prepackaged, precut clear fibers into connector holes. tape fiber to connector to hold

- Carefully insert fibers through DDK clips ("A" and "B"). make sure orientation of clips is correct
- Insert connector on other end of fibers. tape fiber to connector to hold. make sure orientation of connectors to one another is correct. (white dot of connector facing up on both sides of ODU cable, tape on other side of connector)
- Place completed ODU cable into gluing fixture. white dot of connector should be facing out towards technician.
- Hold fibers with rope to be sure the free connectors is being bend toward the air conditioner

- Building Cables, Not ODUs
 - PPE items:
 - None required
 - Required tools:
 - DDK ferrules with Silver bar, Don't use Silver Dot
 - DDK clips
 - Scissors
 - Blue Tape, (3M 8902 2 mil Polyester Composite Bonding Tape)
 - Tape dispenser
 - Black Tube (INSULTAB 1/4" Black Tube)
 - Procedure
 - Precut black tube according to the length of cable you are working on. The distance between the tube edge to the polished end of the ferrule should be 8 cm. The lengths of the tubes are:
 - 92 cm
 - 122 cm
 - 298 cm

- Insert prepackaged, precut clear fibers into connector holes.
- Tape fibers flat and roll fibers together
- Insert fibers through the black tube.
- Carefully insert fibers through DDK clips ("A" and "B").
- Insert connector on other end of fibers. Tape fiber to connector. Make sure orientation of connectors to one another is correct. (Silver Bar of connector facing up on both sides of ODU cable, tape on other side of connector)
- Check Fiber mapping using Order Tester.
 - Push fibers on one end of cable to pigtail on Order Tester
 - Turn on Order Tester
 - With Bevel up (Silver Bar up), the order of the colors should be from left to right
 - ● ● ● ○ ● ● ●, with the last 3 blinking
 - i.e. **Red Orange Green Blue White Blinking Red Blinking Orange Blinking Green**

- Place labels on tubing.
- Record label serial numbers in log book along with the date.
- Place completed cable into gluing fixture. Silver bar on ferrule should be facing out towards technician.
- Hold fibers with rope to be sure the fibers are being bend toward the air conditioner.

- Gluing ODUs and cables
 - PPE items:
 - Nitrile gloves
 - Chemical splash goggles for all people involved in gluing
 - Safety Glasses for all People in the Area
 - Lab Coat
 - N2/compressed gas cylinder safety training required
 - Follow compressed gas safety procedures
 - Required tools:
 - EFD gluing machine
 - Syringe, piston, needle
 - Mixing cup, disposable pipette, stirrer, K-dry
 - Electronic scale
 - N2 gas dispenser
 - BC-600 epoxy (2 part epoxy, resin and hardener)

- Procedure
 - Person mixing the epoxy should require all people in the area not involved in the gluing process to put on safety glasses.
 - Clean off cable in gluing fixture with N2 gas
 - Mix BC-600 according to the following ratio 10 g resin : 2.8 g hardener
 - Carefully pour BC-600 mixture into syringe
 - Connect N2 gas to EFD gluing machine
 - Attach syringe to EFD gluing machine hose
 - Carefully bleed off excess air in syringe:
 - With syringe pointing up, and AWAY from self and others depress EFD finger switch once
 - Piston will move upwards, and drive remaining air from syringe
 - Apply epoxy to top of connector, moving syringe across the top gently. Do not overfill
 - After applying epoxy, wait and allow epoxy to flow down into fibers
 - Carefully move fibers back and forth to improve epoxy flow into fiber holes

- Repeat steps last 3 steps until epoxy is level with top of connector
- Wait overnight for epoxy to harden
- Repeat steps again to glue other side of connector