Lab #4. Splicing

Given:

- a reel of single fiber single mode optical cable
- denatured alcohol for a cleaning and napkins
- fiber optic stripper
- fiber optic cleaver
- fusion splicer

Goal:

Make two optical fibers being permanently joined together by welding using an electronic arc.

Procedure:

Step 1. Fiber preparation.

Prepare the fiber by cutting from the reel and stripping the coatings, jackets and a tube. Then making sure that only bare fiber is left showing.

Carefully clean the stripped bare fiber in the denatured alcohol.

Step 2. Cleave the fiber.

With a high precision fiber cleaver, cleave the fiber to a specified length according to the fusion splicer's manual. (here was the most popular mistake during the lab, see conclusions)

Step 3. Place the splice protection sleeve.

Put a fusion splice protection sleeve onto one of the fiber being spliced.

Step 4. Fusion splicing.

Place both fibers in the fusion splicer and do the fusion splice. The ends of the fibers are brought close together and aligned between the splicer electrodes. Current splicer does it in auto mode.

Step 5. Testing.

Visual inspection of the fusion point via the splicers own display shows the results of the splice. Also splicer gives an estimation of the splice loss. Prior to removing the fibers from the splicer, the machine may put some strain onto the splice to ensure a good physical joint has been made.

Step 6. Splice Protection

Slide the fusion splice protection sleeve on the joint and put it into the heat shrink oven, and press the heat button.

Everything is done.

Lab #4. Splicing

Common problems are appeared during the Lab:

1. Careless cleaving. Detected by the fusion machine as large cleave angle error. Solution - repeat procedure of cleaving again.

2. Wrong length of the bare fiber. Detected by the fusion machine as motor over-return error. Solution – repeat from the beginning.