Lab 4.2.9b Fluke 620 Cable Tester – Faults

Objective

- Learn the Cable Test - Pass / Fail features of the Fluke 620 LAN CableMeter or an equivalent tester.

- Learn how to use a cable tester to check for the proper installation of unshielded twisted pair (UTP) for an Ethernet network.

- Test different cables to determine some problems that can occur from incorrect cabling installation and termination.

Background / Preparation

Basic cable tests can be very helpful in troubleshooting cabling problems with UTP. The Cabling infrastructure or cable plant in a building is expected to last at least ten years. Cabling-related problems are one of the most common causes of network failure. The quality of cabling components used, the routing and installation of the cable, and quality of the connector terminations will be the main factors in determining how trouble-free the cabling will be.

Prior to starting the lab, the teacher or lab assistant should have several correctly wired Category 5 cables to test. The cables should be both straight-through and crossover. There should also be several Category 5 cables created with problems. Cables should be numbered to simplify the testing process and to maintain consistency. The following resources will be required:

- Category 5 straight-through and crossover wired cables of different colors, some good and some bad

- Category 5 straight-through and crossover wired cables with open wire connections in the middle or one or more conductors shorted at one end that are different colors and different lengths

- Cable Tester, which is Fluke 620 LAN CableMeter or something similar, to test cable length

Step 1

Turn the rotary switch selector on the tester to the **TEST** position. Press the **SETUP** button to enter the setup mode and observe the LCD screen on the tester. The first option should be CABLE. Press the **UP** or **DOWN** arrow buttons until the desired cable type of **UTP** is selected. Press **ENTER** to accept that setting and go to the next one. Continue pressing the UP/DOWN arrows and pressing **ENTER** until the tester is set to options in the chart below. Once the options have been properly selected, press the SETUP button to exit setup mode.

Tester Option	Desired Setting – UTP
CABLE:	UTP
WIRING:	10BASE-T or EIA/TIA 4PR
CATEGORY:	CATEGORY 5
WIRE SIZE	AWG 24
CAL to CABLE?	NO
BEEPING:	ON or OFF
LCD CONTRAST	From 1 thru 10 (brightest)

Step 2

For each cable to be tested, use the following procedure. Place the near end of the cable into the RJ-45 jack labeled UTP/FTP on the tester. Place the RJ-45-RJ-45 female coupler on the far end of the cable. Then insert the cable identifier into the other side of the coupler. The coupler and the cable identifier are accessories that come with the Fluke 620 LAN CableMeter.

Step 3

Using the tester LENGTH function and a UTP Cable ID Unit, the length of the cable can be determined. Perform a basic cable test on each of the cables provided. Then fill in the following table

based on the result for each Category 5 cable tested. For each cable, write down the number and color, whether the cable is straight-through or crossover or coaxial, the tester screen test results, and what the problem is. For UTP cables, press the **DOWN** arrow or **UP** arrow to see all pairs.

Cable No.	Cable Color	Tester Test Results	Problem
1			
2			
3			
4			