



LAB 5 - Time Domain Reflectometry

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Purpose:

To observe the behavior of transmission lines to signals by introducing various terminations and randomly locate faults.

Equipment:

- TDR
- 2 BNC to clip cables
- 1 BNC TEE
- 150 ohm load with BNC connector
- Random length of coax cable
- Assorted resistors, capacitors and inductor

Procedure:

1. Set the TDR front panel settings according to the manufacturers manual.
2. Connect a random length of cable, with the far end open circuited. Calculate the length of the cable and confirm by measurement with the TDR.
3. Join two BNC to clip cables by connecting the clips together. Terminate the far end with a 50 ohm load. Use the TDR to determine the location of the join in the line. Explain why this connection is not suitable for high frequency use.
4. Observe the trace with the test line terminated with the following conditions:
 - a.) open circuit
 - b.) short circuit
 - c.) a capacitor (approximately 500 pf)
 - d.) an inductor (supplied by instructor)
 - e.) a 51 ohm resistor
 - f.) a 100 ohm resistor
 - g.) a 220 ohm resistor
 - h.) a 22 ohm resistor

NOTE: FOR EACH CONDITION SKETCH OR CAPTURE THE WAVEFORM AND CALCULATE THE REFLECTION COEFFICIENT.

5. Comment on the action observed with the reactive loads.