



HP 85070M Dielectric Probe Calibration

Overview: This document shows how to calibrate the HP 85070M Dielectric Probe. This should be done before each use.

Equipment Needed: De-ionized (distilled) water, probe connectors, antistatic strap, 85070.exe PC software.

For more information: Go to www.agilent.com and search for 85070 or see its data sheet.

To calibrate the probe you will need de-ionized (distilled) water. The water can be obtained from the lab staff. If the measurements seem odd, make sure that the probe connections are snug. They can easily come loose. If the connections aren't snug during calibration, all subsequent measurements will be off.

Caution: Always wear the antistatic strap when touching the network analyzer ports or when using the probe. The ports can be damaged by static electrical discharge.

1. The dielectric probe works with the 8752 Network Analyzers
2. Connect the probe to the microwave cable. Connect the microwave cable that comes with the probe or use the cables in the lab to the network analyzer port 1.
3. Start the 85070.exe software on the PC. It may be on the desktop. If it isn't on the computer, Dr. Furse has the software.
4. On the menu, go to *Calibration-Set Frequency*. Set the start and stop frequency range on a linear scale to the range of interest (ie.. 200 to 1200 Mhz) with 201 points.
5. Select *calibrate* and follow the prompts.
 - The first prompt asks you to calibrate in air. Make sure the probe is clean and put it in air.
 - Click next on the dialog
 - Put the shorting block on the probe. Note that the NA should indicate a short by most of the reading being on the left side of the screen. If this is not the case reposition the shorting block to create this result.
 - Click next on the dialog. If an error occurs at this stage a dirty probe or the positioning of the shorting block is the usual cause.
 - Insert the tip of the probe in the de-ionized water. The water doesn't have to be very deep. Make sure there are no air bubbles on the bottom of the probe.
 - Click next on the dialog the probe should now be calibrated
6. You can save the calibration for later use if you desire. You are now ready to make measurements.

Before measuring, thoroughly mix and dissolve all materials in the solution.